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NARRATIVE

OF AN

EXPEDITION

INTO

CENTRAL AUSTRALIA,

PERFORMED

Under the Authority of Her Majesty's Government,

DURING

THE YEARS 1844, 5, AND 6.

TOGETHER WITH A NOTICE OF THE

PROVINCE OF SOUTH AUSTRALIA,

IN 1847.

BY

CAPTAIN CHARLES STURT, F.L.S. F.R.G.S.

ETC. ETC.

AUTHOR OF "TWO EXPEDITIONS INTO SOUTHERN AUSTRALIA."

IN TWO VOLUMES.

VOL. II.

LONDON:

T. AND W. BOONE, 29, NEW BOND STREET.

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„ 71, „ 11, *for* 180, *read* 120 miles.
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TRAVELS IN AUSTRALIA.

CHAPTER I.

REFLECTIONS ON OUR DIFFICULTIES—COMMENCE THE RETREAT—EYRE'S CREEK—PASS THE NATIVE WELL—RECROSS THE STONY DESERT — FIND ANOTHER WELL WITHOUT WATER — NATIVES — SUCCESSFUL FISHING — VALUE OF SHEEP — DECIDE ON A RETREAT — PROPOSE THAT MR. BROWNE SHOULD LEAVE—HIS REFUSAL TO DESERT THE PARTY — MR. BROWNE'S DECISION — PREPARE TO LEAVE THE CAMP—REMARKS ON THE CLIMATE — AGAIN LEAVE THE DEPÔT—SINGULAR EXPLOSION—DISCOVER A LARGE CREEK—PROCEED TO THE NORTH—RECURRENCE OF SAND RIDGES—SALT WATER LAKE—AGAIN STRIKE THE STONY DESERT—ATTEMPT TO CROSS IT.

To that man who is really earnest in the performance of his duty to the last, and who has set his heart on the accomplishment of a great object, the attainment of which would place his name high up in the roll of Fame; to him who had well nigh reached the topmost step of the ladder, and whose hand had all but grasped the pinnacle, the necessity must be great, and the struggle of feeling severe, that forces him to bear back, and abandon his task.

Let any man lay the map of Australia before him, and regard the blank upon its surface, and then let me ask him if it would not be an honourable achievement to be the first to place foot in its centre.

Men of undoubted perseverance and energy in vain had tried to work their way to that distant and shrouded spot. A veil hung over Central Australia that could neither be pierced or raised. Girt round about by deserts, it almost appeared as if Nature had intentionally closed it upon civilized man, that she might have one domain on the earth's wide field over which the savage might roam in freedom.

I had traced down almost every inland river of the continent, and had followed their courses for hundreds of miles, but, they had not led me to its central regions. I had run the Castlereagh, the Macquarie, the Lachlan, the Murrumbidgee, the Hume, the Darling, and the Murray down to their respective terminations, but beyond them I had not passed—yet—I looked upon Central Australia as a legitimate field, to explore which no man had a greater claim than myself, and the first wish of my heart was to close my services in the cause of Geography by dispelling the mists that hung over it.

True it is that my friend Eyre had penetrated high up to the north of Mount Arden, and there can be no doubt but that his ardent and chivalrous spirit would have carried him far beyond the point he attained, if he had not met unconquerable difficulties. I thought that a cooler and more leisurely progress would enable me to feel my way into a country, whose inhospitable character developed itself more the more it was penetrated. I had adopted certain opinions, the correctness of which I was anxious to

test, and I thought the investigations I desired to make, were not only worthy the pursuit of private ambition, but deserving the attention of Her Majesty's Government. With these feelings I could not but be grateful to Lord Stanley, for having entertained my proposition, and given me an opportunity to distinguish myself. It is not because his Lordship is no longer at the head of the Colonial Office, that I should refrain from making my acknowledgments to him, and expressing the sense I entertain of the obligation under which he has laid me. It so happened that the course pointed out to me by Lord Stanley, and that in which I desired to go, were the same, and I had hoped that in following up my instructions, I should ultimately have gained the spot I so ardently desired to reach, and to have left the flag of my native country flying over it.

The feelings then with which I returned to the creek after the failure of our last attempt to penetrate to the north may well be imagined. I returned to it, as I have said, with perhaps a sullen determination to stand out the drought; but, on calm reflection, I found that I could not do so. I could not indeed hide from myself that in the course of a few days my retreat to the Depôt would unavoidably be cut off if rain should not fall. Looking to the chance of our being delayed until our provisions should be consumed, and to the fact that we could not expect to get back to the Depôt in less than

three weeks, and that I could not hope for any amendment either in Mr. Browne or my men, so long as they were confined to the scanty diet we then had. I determined on my return to the Park, thence to take out fresh hands, and to make another attempt to penetrate across the Desert in some other direction; but, as this measure, like our detention at the Depôt, would involve a great loss of time, I proposed to myself again to divide the party, and to send Mr. Browne home with all the men, except Mr. Stuart and two others. I saw no objection to such a course, and certainly did not anticipate any opposition to it on the part of my companion. I resolved then, with a due regard to his state, to retrace my steps with all possible expedition; and, accordingly, directed that everything should be prepared for our retreat on the morning of the 14th, for the sky had cleared, and all prospect of rain had again vanished. Although we were here so close to the Tropic, the climate was not oppressive. The general temperature after noon was 84°, the morning 46°. The prevailing wind was from S.S.E. to E.S.E. and it was invariably cold; at least we felt it so, and I regretted to observe, that in Mr. Browne's case it caused a renewed attack of violent pains in the muscles and joints, from which he had before been somewhat free. It is also remarkable, that up to this distant point, no material change had taken place in the character of the vegetation; with the exception of the few trees and plants I have mentioned

the herbage of these sterile regions, and of the Darling were essentially the same, only with this difference, that here they were all more or less stunted, whereas, in the month of October, when we passed up the Darling, they were only just flowering, now in the month of September they had ripened their seed.

Before we commenced our journey back to the Depôt, I named this "Eyre's Creek." No doubt it is an important feature in the country where it exists. Like the other creeks, however, it rises in plains, and either terminates in such or falls into the Stony Desert. There can be no doubt, however, that to any one desiring to cross the continent to the north, Eyre's Creek would afford great facilities; and if the traveller happened fortunately to arrive on it at a favourable moment he would have every chance of success.

For twelve miles below the salt lagoon there is not a blade of grass either in the bed of the creek or on the neighbouring flats, the soil of both being a stiff cold clay. We passed this ungenial line, therefore, and encamped near a fine pool of water, where both our own wants and those of our horses, as far as feed and water went, were abundantly supplied.

In going along one of the flats, before we discovered the creek, Mr. Browne and I had chased a Dipus into a hollow log, and there secured it. This pretty animal we put into a box; but as it appeared

to eat but little grass, we gave it some small birds, which it always devoured at night. Our dogs had killed one on the banks of the Darling, but had so mutilated it, that we could not preserve it. We hoped, however, to keep this animal alive, and up to the present time there was every chance of our doing so. It was an exceedingly pretty animal, of a light grey colour, having a long tail, feathered at the end, insectivorous, and not marsupial. On the 16th we turned from the creek to the south, and passed down the long flat up which we had previously come. On the following day we passed several of the hollows scraped by the natives, and in one of them found a little water, that must have accumulated in it from the drizzly showers that fell on the night of the 8th, and which might have been heavier here than with us. On the 19th we arrived at the creek where Flood's horse was lost, but could not make out any track to betray that he had been to water, and as there was not enough remaining in the pond for our use, we crossed the plain, over which we had had so much difficulty in travelling, and halted for a short time at the native well, out of which numbers of birds flew as we approached. From the Box-tree Forest we pushed on down the polygonum flat, where we had seen the native woman who had secreted herself in the bush. A whole family was now in the same place, but an old man only approached us. We were, indeed, passing, when he called to us, expressly for the purpose of telling us that the horse

(Flood's) had gone away to the eastward. This native came out of his way, and evidently under considerable alarm, to tell us this, and to point out the direction in which he had gone, Our stock of presents being pretty nearly exhausted, Mr. Browne, with his characteristic good nature, gave him a striped handkerchief, with which he was much pleased. As it was evident the poor horse had kept along the edge of the Desert, and as he was a wandering brute, not caring for companions, it was uncertain to what distance he had rambled, I did not, therefore, lose time by attempting to recover him. We were all of us sure that he would not face the Stony Desert, but he may still be alive, and wandering over that sterile country. We stopped for the night on the long channel near the sandy rise where we had before rested, about ten miles short of our camp, and the trees on the muddy plain; and having effected our passage across that plain and the Stony Desert, over which it was with extreme difficulty that we kept our track, found ourselves on the 22nd, in the little grassy valley, from which we had entered upon it; little water was remaining, however, at the place where we had then stopped, so that I sent over to the sequestered spot Lewis had discovered, but the water there had entirely disappeared. Flood managed to shoot a couple of ducks (Teal), of which there were four or five that flew away to the south-east. These two birds were, I may truly say, a God-send, and I beg to assure the reader they were uncommonly good.

From this valley we had to cross the heavy sand ridges which had so fatigued our horses before, and I hardly expected we should find water nearer than the Fish Pond. We therefore started early to get over the distance as soon as possible, and, as on the outward journey, had a most severe task of it. The ridges were certainly most formidable, although they were not of such size as those from which we had retreated. At six miles we crossed the salt lagoon, and late in the afternoon descended to the box-tree forest before mentioned, having the grassy plains now upon the left-hand side. The sandy ridges overlooked these plains, so that in riding along we noticed some natives, seven in number, collecting grass seeds upon them, on which alone, it appears to me, they subsist at this season of the year. However, as soon as they saw us, they all ran away in more than usual alarm, perhaps from the recollection of our misunderstanding with Mr. Popinjay. Their presence, however, assured us that there must be water somewhere about, and as on entering the plain, more to the west than before, we struck on a track, I directed Mr. Browne to run it down, who, at about half-a-mile, came to a large well similar to that in the creek on the other side of the Stony Desert, but not of the same dimensions. We had lost sight of him for some little time, when suddenly his horse made his appearance without a rider, and caused me great anxiety for the moment, for my mind immediately reverted to our sulky friend, and my fears were at once raised

that my young companion had been speared; riding on, therefore, I came at length to the well, down which, to my inexpressible relief, I saw Mr. Browne, who was examining it, and who came out on my calling to him. There was not sufficient water to render it worth our while to stop; but the well being nine feet deep, shewed the succession of strata as follows: four feet of good alluvial soil; three feet of white clay; and two feet of sea sand.

I should perhaps have been more particular in the description of our interview with the old man and his family on the northern side of the earthy plain. As I have stated, he called out to us, and in order to discover what he wanted, I held Mr. Browne's horse, while he dismounted and went to him. The old native would not, however, sit down, but pointed to the S. E. as the direction in which, as far as we could understand, the horse, "cadli" (dog), as he called him, the only large four-legged brute of which he knew any thing, had gone. The poor fellow cried, and the tears rolled down his cheeks when he first met Mr. Browne, and the women chanted a most melancholy air during the time we remained, to keep the evil spirits off, I suppose; but they had nothing to fear from us, if they could only have known it. This confusion of tongues is a sad difficulty in travelling the wilds of Australia. Both the old man and the women wanted the two front teeth of the upper jaw, and as the former had worn his down almost to a level with his gums like an old horse, he looked sadly disfigured.

We halted about three miles short of the place at which we had before stopped, but as Joseph followed some pigeons to a clump of trees across the plain at about a mile distance, and there found a small pond of water, we moved over to it, and remained stationary on the following day to rest our wearied animals.

The 24th again saw us at the Fish Pond, where Mr. Browne again exhibited his skill in the gentle craft, and caught a good dish of the finny tribe. The mystery as to how these fish could have got into so isolated a spot, was not yet cleared up, and I was really puzzled on the subject.

On the 27th, as we were crossing the country between the creeks, some natives came in from the north and called out to us, in consequence of which Mr. Browne and I rode up to them. They were in a sad state of suffering from the want of water; their lips cracked, and their tongues swelled. They had evidently lingered at some place or other, until all the water, intermediate between them and the creeks had dried up. The little water we had was not sufficient to allay their thirst, so they left us, and at a sharp trot disappeared over the sand hill.

On the 29th our journey over the sandy ridges was very distressing. They appeared to me to be much more numerous, and the valleys between them much more sandy than when we first passed over them, and were thickly covered with spinifex, although grass was also tolerably abundant in the flats. At this stage of our journey, I was

the only one of the party who was not ill; Mr. Browne and all the men were suffering, added to which, the men were fairly knocked up. Their labours were now, however, drawing to a close, and I was only too thankful, that I retained my strength.

We had crossed the first or Strzelecki's Creek on the 29th, and had halted that night without water. During it some of the horses broke loose and wandered back; but Flood and Joseph soon overtook and brought them back. We should have had a distance of 85 miles to travel without water, but fortunately the precaution we had taken of digging wells in going out, insured us a supply in one of them, so that our return over this last long and dry tract of country was comparatively light, and we gained the Park and joined Mr. Stuart at the stockade on the evening of the 2nd of October, after an absence of seven weeks, during which we had ridden more than 800 miles. Had it not been for the precaution of digging these wells, I do not think that two or three of the horses would have reached their journey's end. We only found water in one, it is true, but that one was of the most essential service, inasmuch as it saved several of our animals; and this is a point, I hope future travellers in such a country will bear in mind. Mr. Browne found it necessary to put all the men on the sick list, and their comrades made them as comfortable as they could, after their late fatigues.

It was a great satisfaction to me to learn that everything had gone on well at the camp during my absence; Mr. Stuart had a good report to make of all. The cattle had been duly attended to, and had become exceedingly tame and quiet. The sheep were in splendid condition, but their flesh had a peculiar flavour—and that, too, not a very agreeable one, still their value was unquestionable, for if we had been living on salt provisions, it is more than probable that half of the party would have been left in the desert. The practicability of taking a flock of sheep into the interior, had now been fully proved in our case, at all events; but I am ready to admit that they are, notwithstanding, a precarious supply, and that unless great care be taken, they may be lost. The men, however, appeared to consider them of far too great importance to be neglected, and I think that when taken, they will for that very reason be well looked after.

The stockade had been erected and really looked very well; it was built just as I had directed, with the flag flying at the entrance. I availed myself of the opportunity, therefore, to call it "Fort Grey," after his Excellency the then Governor of South Australia.

Mr. Stuart informed me that a few natives only had visited the camp; but that on one occasion some of them appeared armed, being as they said on their way to a grand fight, four of their tribe having been killed in a recent encounter. Only the day before,

however, a party had visited the camp, one of whom had stolen Davenport's blanket. He was pretty sure of the thief, however, so we did not despair of getting it back again.

I observed that when we were on Eyre's Creek, the climate and temperature were cool and agreeable. From that period the heat had considerably increased, and the thermometer now ranged from 96 to 100°. The wind having settled in its old quarter the E.S.E., in this latitude was not so cold as we had felt it in a more northerly one. Why it should have been so, it is difficult to say: we know the kind of country over which an E.S.E. wind must pass between the coast and the latitude of Fort Grey, and could not expect that it should be other than hot, but we are ignorant of the kind of country over which it may sweep higher up to the north. Can it be that there is a large body of water in that quarter? We shall soon have to record something to strengthen that supposition. About this period the sky was generally cloudy, and, as I have before remarked, in any other region it would have rained, but here only a few drops fell, no signs of which remained half an hour afterwards; the barometer, however, was very low, and it was not unreasonable to have encouraged hopes of a favourable change.

On the 3rd the natives who had visited the camp before our return, again came, together with the young boy who Davenport suspected had stolen his blanket. He charged him with the theft, therefore,

and told him not to return to the tents again without it, explaining at the same time what he had said, to the other natives. The boy went away before the rest, but all of them returned the next day, and he gave up the blanket. On hearing this, I went out and praised him, and as he appeared to be sorry for his offence, I gave him a knife, in which I believe I erred, for we afterwards learnt, that the surrender of the blanket was not a voluntary act, but that he had been punished, and forced to restore it by his tribe. I cannot help thinking, however, that if the theft had not been discovered, the young rogue would have been applauded for his dexterity.

I had, during my journey back to the Depôt, sat up to a late hour writing, that no delay might take place in my intended arrangements on our arrival at Fort Grey. In revolving in my own mind the state of the country, I felt satisfied that, although the water had decreased fearfully since the July rain, the road was still open for Mr. Browne to make good his retreat, but it was quite uncertain how long it might continue so. It was evident, indeed, that neither he nor myself had any time to lose, but I waited for a few days before I broke the subject to him, reluctant as I was to hasten his departure, and feeling I should often have to regret the loss of such a companion. The varied reverses and disappointments we had encountered together, and the peculiar character of the expedition, had, as far as Mr. Browne and myself were

concerned, removed all restraint, and left to ourselves in that dreary wilderness, we regarded each other as friends only, who were united in a common cause, in the success of which we were almost equally interested. I knew, therefore, that the proposal I was about to make would give him pain; but I counted on his acquiescence, and as time would not admit of delay, I availed myself of an opportunity that presented itself the third day after our return, to break it to him.

As we were sitting in the tent after dinner, with our tea still before us, I said to him, "I am afraid, Browne, from what I have observed, that you have mistaken the object for which I have returned to the Depôt, and that you have been buoying yourself up with the hope that it is done preparatory to our return to Adelaide; for myself I cannot encourage any such hope for the present, at least. So far indeed from this, I have for some time been reflecting as to the most prudent course to be pursued under our present circumstances; for, I would not conceal from you the pain I have felt at the failure of our endeavours to penetrate farther than we have been able to do into the interior, neither can I conceal from myself the fact, that whatever our personal exertions, the results of our labours have not been commensurate with our expectations, and that however great our perseverance or however difficult the task we have had to perform, the world at large will

alone judge of its merits by its success. In considering how we can yet retrieve our misfortunes, one only step occurs to me, and whatever pain our separation may cost us, I am sure, where the interests of the services call for it, you will readily comply with my wishes. I propose, then, your return to Adelaide, with all the party but three; that you should leave me five horses, and take with you only such provisions as you may absolutely require upon the road. By such an arrangement I might yet hold out against the drought, and ultimately succeed in doing something to make up for the past." My young friend was evidently unprepared for the proposition I had made. "You have done all you were sent out to do," he observed, "why then seek to penetrate again into that horrid desert? It is impossible that you can succeed during the continuance of the dry weather. If you now go you will never get back again; besides, have you," he asked, "made any calculations as to the means both of provisions and carriage you will require?" "That," I replied, "is for my consideration, but I have done so, and it appears to me that both are ample." "Well," said Mr. Browne, "it may be so, I do not know, but I can never consent to leave you in this dreadful desert. Ask me to do anything else, and I will do it; but I cannot and will not desert you." It was in vain that I assured him, he took a wrong view of the matter. That, as I had sent Mr. Poole home to increase my means, so I wished to send him, and that he would

be rendering me as valuable, though not such agreeable service, as if he continued with me. You know, Browne," I added, "that the eyes of the geographical world are fixed on me, and that I have a previous reputation to maintain; with you it is different. If I hoped to make any discovery I would not ask you to leave me. Believe me, I would that you shared the honour as you have shared the privations and anxieties of this desert with me; but I entertain no such hope, and would save you from further exposure. I have not seen enough of this dreary region to satisfy me as to its present condition. How then shall I satisfy others? That Stony Desert was, I believe, the bed of a former stream, but how can I speak decidedly on the little I have observed of it. No! as we have been forced back from one point, I must try another,—and I hope you will not throw any impediment in the way. There is every reason why you should return to Adelaide: your health is seriously impaired,—you are in constant pain,—and your affairs are going to ruin; on all these considerations I would urge you to comply with my wishes." Mr. Browne admitted the truth of what I said, but felt certain that if he left, it would only be to hear of my having perished in that horrid desert,—that my life was too valuable to others to be so thrown away,—that he owed me too much to forsake me, and that he could not do that of which his conscience would ever after reproach him;—that his brother would

attend to his interests, and that if it were otherwise, it would be no excuse for him to desert his friend,—that he would acquiesce in any other arrangement, but to leave me he could not. "Well," I said, "I ask nothing unreasonable from you, nothing but what the sternness of duty calls for; and if you will not yield to friendly solicitations, I must order you home." "I cannot go," he replied; "I do not care for any pecuniary reward for my services, and will give it up: I want no pay, but desert you I will not." The reader will better imagine than I can describe, such a scene passing in the heart of a wilderness, and under such circumstances I may not state all that passed; suffice it to say, that we at length separated, with an assurance on Mr. Browne's part, that he would consider what I had proposed, and speak to me again in the morning. The morning came, and after breakfast, he said he had endeavoured to force himself into a compliance with my wishes, but to no purpose;—that he could not leave me, and had made up his mind to take the consequences. It was in vain that I remonstrated, and I therefore ceased to importune him on a point which, however much I might regret his decision, I could not but feel that he was influenced by the most disinterested anxiety for my safety. But it became necessary to make some other arrangements; I had already been four days idle, and it was not my intention to let the week so pass over my head. Mr. Browne was too ill to accompany me again into the field. I sent, therefore, for Mr. Stuart, and told him to

put up ten weeks provisions for four men,—to warn Morgan and Mack that I should require them to attend me when I again left the camp,—and to hold himself and them in readiness to commence the journey the day but one following; as I felt the horses required the rest I should myself otherwise have rejected.

I then sent for Mr. Browne, and told him that I proposed leaving the stockade in two days, by which time I hoped the horses would in some measure have recovered from their fatigues,—that as he could not attend me, I should take Mr. Stuart with two fresh men,—that in making my arrangements I found that I should be obliged to take all the horses but two, the one he rode and a weaker animal; to this, however, he would by no means consent—entreating me to take his horse also, as he felt assured I should want all the strength I could get.

No rain had as yet fallen, but every day the heat was increasing: the thermometer rising, even thus early in the season, to 98° and 100° in the shade, and the wind keeping steadily to the E.S.E. The country was so dry, and the largest pools of water had so diminished in quantity, that I doubted whether or not I should be able to get on, since as it was I should have to travel the first 86 miles without water, there being none in any other direction to the north of us. Even the large sheet in the first creek, to which I proposed going, had fearfully shrunk. But what gave me

most uneasiness, was the reduced state of water on which the men and animals depended. From a fine broad sheet it was now confined within the limits of its own narrow channel, and I felt satisfied that if I should be absent many weeks, Mr. Browne would be obliged to abandon his position. Foreseeing this contingency, I arranged with him that in the event of his finding it necessary to retire, he should fall back on the little creek, near the old Depôt. That before he finally broke up the camp, he should dig a hole in some favourable part of the creek into which the water he might leave would drain, so as to insure on my return as much as possible, and we marked a tree under which he was to bury a bottle, with a letter in it to inform me of his intended movements. Nothing could have been more marked or more attentive than Mr. Browne's manner to me, and I am sure he saw me mount my horse to depart with sincere regret; but the interval between the conclusion of these arrangements and the day fixed on to resume my labours soon passed over, although I deferred it to the 9th, in consequence of Flood's assuring me that the horses required the additional rest.

I had, indeed, been the more disposed to postpone the day of my departure, because I hoped, from appearances, that rain would fall, but I was disappointed. On the 6th it was very close, and heavy clouds passed over us from the N.E., our rainy quarter, towards the Mount Serle ranges, but still no rain fell on the depressed and devoted region in which

we were. At eight, however, it rained slightly for about a quarter of an hour, and the horizon was black with storm clouds; all night heavy thunder rolled in the distance, both to the west and east of us; my ear caught that joyful sound as I laid on my mattress, and I fervently prayed that it might be the precursor of a fall.

I could not but hope, that, in the ordinary course of events, to revive and to support nature, the great Author of it would have blessed the land, desert as it was, with moisture at last, but I listened in vain for the pattering of rain, no drops, whether heavy or light, fell on my tent. The morning of the 7th dawned fair and clear; the sun rose in unshrouded splendour; and crossed the heavens on that day without the intervention of a cloud to obscure his disc for a moment. If then I except the rain of July, which lasted, at intervals, for three days, we had not had any for eleven months. Under the withering effects of this long continued drought, the vegetable kingdom was again at a stand; and we ourselves might be said to have been contending so long against the elements. No European in that respect had ever been more severely tried.

The day before we commenced our journey to the north it was exceedingly hot, the thermometer rose to 106° in the shade, and thus early in the season were we forewarned of what we might expect when the sun should become more vertical. In the afternoon the old man who had visited us just before we commenced our late journey, arrived in the camp with his two wives, and a nice little girl about eleven,

with flowing curly hair, the cleanliness and polish of which would have done credit to the prettiest head that ever was adorned with such. They came in from the S.W., and were eagerly passing our tents, without saying a word, and making for the water, when we called to them and supplied all their wants. The poor things were almost perishing from thirst, and seized the pannikins with astonishing avidity, when they saw that they contained water, and had them replenished several times. It happened also fortunately for them, that the lamb of the only ewe we had with us, and which had been dropped a few weeks before, got a *coup de soleil*, in consequence of which I ordered it to be killed, and given to the old man and his family for supper. This they all of them appeared to enjoy uncommonly, and very little of it was left after their first meal. The old man seemed to be perfectly aware that we had been out, but shook his head when I made him understand that I was going out again in the morning.

I determined, on the journey I was about to commence, to run on a due north course from the first "Strzelecki's Creek," as soon as I should reach it, and to penetrate the interior in that direction as far as circumstances might justify. As the reader will have concluded from the observations I have made, it had occurred to me that the Stony Desert had been the bed of a former stream, and I felt satisfied that if I was right in that conclusion, I should certainly strike it again. My object, therefore, was to keep

at such a distance from my last course, as should leave no doubt of that fact upon my mind; it appeared to me that a due northerly course would about meet my views, and that if the Stony Desert was what I supposed it to have been, I should come upon it about two degrees to the eastward of where I had already crossed it. In pushing up to the north I also hoped that I might find a termination to the sandy ridges, although I could not expect to get into any very good country, for from what we saw to the north it was evidently much lower than that over which we had passed, and I therefore looked for a cessation of the sandy ridges we had before been so severely distressed on passing.

I shook hands with Mr. Browne about half-past eight on the morning of the 9th of October, and left the depôt camp at Fort Grey, with Mr. Stuart, Morgan and Mack, taking with me a ten-weeks' supply of flour and tea. I once more struck into the track I had already twice traversed, with the intention of turning to the north as soon as I should gain Strzelecki's Creek. As we rode over the sand-hills, they appeared as nothing to me, after the immense accumulations of sand we had crossed when Mr. Browne and I were out together. We stopped short of the flat in which we had sunk the largest well on that occasion, to give the horses time to feed a little before sunset, and not to hurry them too much at starting. The day was exceedingly warm, and the wind from the N.E. A few heat-drops fell during the night, but the short

thunder shower at the Depôt on the Sunday did not appear to have extended so far as where we then were. Nevertheless it would appear, that these low regions are simultaneously affected by any fall of rain; for there can be no doubt as to that of July having extended all over the desert interior, and the drizzling shower we had at the head of the northern Eyre's Creek, just as we were about to retrace our steps, having been felt the same day at the camp. I have just said that the day had been exceedingly hot, with the wind from the N.E., a quarter from whence we might naturally have expected that it would have blown warm; but I would observe, that before Mr. Browne and I passed the Stony Desert on our recent excursion, the winds from that point were unusually cold, and continued so until after we had crossed the Desert, and pushed farther up to the north, when they changed from cold to heat. I will not venture any conjecture as to the cause of this, because I can give no solution to the question, but leave it to the ingenuity of my readers, who are as well able to judge of such a fact as myself.

I would also advert to a circumstance I neglected to mention in its proper place, but which may be as forcibly done now as at the time it occurred. When Mr. Browne and I were on our recent journey to the north, after having crossed the Stony Desert, being then between it and Eyre's Creek, about nine o'clock in the morning, we distinctly heard a report as of a great gun discharged, to the westward, at the distance of half a mile. On the following morning, nearly at

the same hour, we again heard the sound; but it now came from a greater distance, and consequently was not so clear. When I was on the Darling, in lat. 30°, in 1828, I was roused from my work by a similar report; but neither on that occasion, or on this, could I solve the mystery in which it was involved. It might, indeed, have been some gaseous explosion, but I never, in the interior, saw any indication of such phenomena.

We were obliged to fasten up our horses to prevent them from straying for water, and had, therefore, nothing to do but to saddle them on the morning of the 10th, and started at six. Our journey the day before had been 33 miles: this day we rode about 36, to the little muddy creek the the reader will, I have no doubt, call to mind. In it, contrary to my expectation, we found a small supply of water, though difficult to get; and I halted at it, therefore, for the night, and reached the Strzelecki Creek about half-past ten on the morning of the 11th, in which I was rejoiced to find that the water was far from being exhausted. Turning northwards up the creek, I halted about half-past one at the upper pool, about seven miles from the first. As far as this point the lay of the sand ridges was N.N.E. and S.S.W.

As Mr. Browne had stated to me, the country to the north was much more open from the point at which we now were than to the west. A vast plain, indeed, met the horizon in the first direction, and as

we rode up it on the 12th, we observed that it was bounded at irregular distances, varying from three to six miles, on either side of us, by low sand hills. The whole plain was evidently subject to flood, and the travelling in some places was exceedingly heavy. We had ridden from early dawn until the sun had sunk below the horizon, without seeing any apparent termination to this plain, or the slightest indication of water. Just as it was twilight we got on a polygonum flat; there being a little sand hill on one side of it, under which I determined to stop for the night.

While the men were tethering the horses on the best part of the flat, where there happened to be a little green grass, Mr. Stuart and I walked up the sand hill; but in the obscure light then prevailing, we could not see any thing distinctly. It appeared, however, that the country before us was traversed by a belt either of forest or of scrub; there was a long dark line running across the country, but we could not make out what it was, so that we descended to our little bivouac full of hope, and anxious for the morning dawn to satisfy ourselves as to what we had been looking at. Day had scarcely broke when we were again on the hill; and as objects became clearer, saw a broad belt of gum-trees extending from the southward of east to the north-west. It was bounded on either side by immense plains, on which were here and there ridges of sand, but at a great distance from each

other. There was another small sand hill distant four miles, and an apparently high and broken chain of mountains was visible to the N.E., distant more than 50 miles. The trees were not more than three miles from us, and were denser and seemingly larger than any we had seen; and although we could not see any water glittering amidst the foliage, yet I could not but hope that we were on the eve of some important discovery. There were likewise mountains in the distance, with broken lofty peaks, exactly resembling the Mount Serle chain, and I ventured to hope that I had at length found a way to escape from the gloomy region to which we had been so long confined. Descending from our position we pushed for a dark mass of foliage to the N.E., and shortly after crossing the dry bed of a lagoon, found ourselves riding through an open box-tree forest, amidst an abundance of grass. At half a mile further we were brought up by our arrival on the banks of a magnificent channel. There was a large sheet of water to our left, covered with wild fowl. Flooded gum-trees of large size grew on its banks, and its appearance was altogether imposing. I stood looking in admiration on the broad mirror so close to me, and upon a sight so unusual; and I deeply regretted at that moment that Mr. Browne was not with me to enjoy the gratification of such a scene.

We dismounted and turned our horses out to feed on the long grass in the bed of this beautiful creek,

and whilst Morgan prepared breakfast, Mr. Stuart and Mack took their guns and knocked over three ducks, that were, I suppose, never used to be so taken in; but the remainder would not stand fire long, and flew off to the eastward. As they passed, however, I snatched up a carbine, and, without taking any aim, discharged it into the midst of them, and brought one of their number down —the only bird I had shot for many years.

After giving the horses a good feed and a good rest, I crossed the channel of the creek to ascend the little hill I had seen from our morning position, that by taking bearings of the distant ranges from both, I might arrive at their approximate distance from me. From this little hill the prospect was much the same as from the first, only that the distant ranges seemed to be still higher, and there was a long line either of water or mirage at their base, and we now appeared to be in a belt of wood, for the hill on which we stood, rose in the midst of the trees, and our eyes wandered over the tops of them to the distant plains. We descended from it northwards, but had not gone half a mile, when we were again stopped by another creek, still broader and finer than the first. The breadth of its channel was more than 200 yards, its banks were from fifteen to eighteen feet high, and it had splendid sheets of water both above and below us. The natives, whose broad and well beaten paths leading from angle to angle of the creek we had crossed on our approach to it,

had fired the grass, and it was now springing up in the bed of the most beautiful green. I determined, therefore, to stay where I was until the following day, to give my animals the food and rest they so much required, and myself time for reflection. We accordingly dismounted, and turned the horses out, and it was really a pleasure to see them in clover.

The whole bed of the creek was of a vivid green, excepting where gravel had been deposited in it, but the animals kept on the grass, close to the water's edge. As we had approached the creek through a belt of wood, so it extended on the other side for a considerable distance into the plains, but the soil was not so good as in the neighbourhood of the first channel we had crossed, since bushes of rhagodia were growing underneath the trees, as indicative of a slight mixture of salt in the earth. The appearance of the creek, however, embosomed as it was in wood, was very fine, more especially the upward view of it, where there was a splendid sheet of water, in the centre of which the branches of a huge tree appeared reflected, the trunk being completely hid. About a quarter of a mile above us a tributary joins the main branch from the eastward, that when flooded must have a fall of three or four feet, and something of the character of a Canadian rapid.

When I sat down beside the waters of the beau tiful channel to which Providence in its goodness had been pleased to direct my steps, I felt more than I had ever done in my life, the responsibility

of the task I had undertaken. When I left the Depôt I had determined on keeping a northerly course into the interior, for the reasons I have already assigned; but knowing the state of the country as I did, and the little chance there was of finding water on its parched and yawning surface, I now hesitated whether I should persevere in my first determination, or proceed in the examination of this new feature, and of the mountain ranges to the N.E. both of which I had every reason to hope would lead me out of the present fearful desert into a better country. Any one perhaps less experienced than myself in the treacherous character of the most promising river of the Australian Continent, would have acted differently. It would in all probability have occurred to them to trace the creek, either upwards or downwards, in the hope of its leading to something better. It was clear, however, that the first channel I had crossed, was a branch only of that upon which I was resting, and by which the plains I had traversed on approaching it were laid under water, and I felt assured that if my conclusion as to the Stony Desert was correct, I should derive no advantage in tracing the creek downwards, since I knew it would either terminate in extensive grassy plains as I had found other creeks to do, or be lost on the broad surface of the Stony Desert. Taking every thing into consideration, I had resolved on turning to the eastward, to examine the upward course of the creek, believing it more than probable

that it would lead me into the hills, but, as I was weighing these things in my mind, the sky became suddenly overcast and a thunder-storm passed over us, which for the short half hour it continued was of unusual violence, filling all the little hollows on the plains, and chequering them over with sheets of water. The road northwards being thus thrown open to me, I returned to my original purpose, and determined on the morrow to pursue a northerly course directly into the interior, in the hope that ere the surface water left by the thunder-storm should be dried up, I might reach such another creek as the one I was about to quit, or find some other such permanent place of safety; leaving the examination of the upper branches of the creek, and of the mountain ranges to the period of my return. Accordingly on the morning of the 13th, we left our position, crossing to the proper right bank of the creek, and breaking through the nearer box tree forest, traversed open plains, the soil of which was principally sand, but there was an abundance of grass upon them, and they were somewhat elevated above the more alluvial flats near the creek. At 2½ miles we crossed a large tributary from the N.E., the main branch trended to the N.W., and we kept the belt of trees in view as we rode along, during the greater part of the day. At seven miles we descended a little from the grassy plains to a flooded plain of considerable extent, but again rose from it to the sandy level, and finding a small puddle of rain water at 36 miles I halted.

As I was about to trust entirely to the supply of water left by the recent storm, and knew not to what distance it had extended, I felt it necessary to take every precaution to insure our retreat. We worked, therefore, by the light of the moon, and dug a square pit, into which we drained all the water that remained after the horses had satisfied themselves in the morning, but the quantity was so small that I scarcely hoped to derive any advantage from it on our return; and it was really the zeal of Morgan and Mack that induced me to allow them to finish it. Warm as the weather had been at Fort Grey, the night was bitterly cold, with the wind from the S.S.E. We left this, our first well, at early dawn, riding across a continuation of the same grassy and sandy land as that we had journeyed over the day before, only that it had many bare patches upon it full of water, the undersoil being a red clay. The same kind of tree we had seen to the eastward, between the old Depôt and the Darling, and which I had there taken to be a species of Juglans, prevailed hereabouts in sheltered places.

The creek line of trees was was still visible to our left, so that it must have come up a little more to the north. We crossed several native paths leading to it: the impression of an enormous foot was on one of them. At eight miles we descended to a flooded plain, scattered over with stunted box-trees, the greater number being dead, and I may remark that we generally found such to be the case on lands

of a similar description; a fact, it appears to me, that can only be accounted for from the long-continued drought to which these unhappy regions are subject. These flooded plains are generally torn to pieces by cracks of four, six, and eight feet deep, of a depth, indeed, far below that at which I should imagine trees draw their support; but the box-tree spreads its roots very near the surface of the ground, having, I suppose, no prominent tap root, and can therefore receive no moisture from such a soil as that in which we so often found it in premature decay; the excess of moisture at one time, and the want of it at another, must be injurious to trees and plants of all kinds, and this circumstance may be a principal cause of the deficiency of timber in the interior of Australia.

From the level, we ascended to sandy and grassy plains as before, but they were now bounded by sandy ridges of a red colour, and partly covered with spinifex. I really shuddered at the re-appearance of those solid waves which I had hoped we had left behind, but such was not the case. At six miles we arrived at the base, and ascending one of them, found that it was flanked on both sides by others; the space between the ridges being occupied by the white and dry beds of salt lagoons. The reader will, I am sure, sympathise with me in these repeated disappointments, for the very aspect of these dreaded deposits, if I may so call them, withered hope. To whatever point of the

compass I turned, whether to the west, to the north, or to the east, these heart-depressing features existed to damp the spirits of my men, and irresistibly to depress my own; but it was not for me to repine under such circumstances, I had undertaken a task, and in the performance of it had to take the country as it laid before me, whether a Desert or an Eden. Still whatever moral convictions we may have, we cannot always control our feelings. The direction of the ridges was nearly north and south, somewhat to the westward of the first point, so that at a distance of more than two degrees to the eastward they almost preserved their parallelism. We rode along the base of a ridge for about three miles, but as on ascending it to take a survey, I observed that at about a mile beyond, it terminated, and that the dry bed of the lagoon to our right passed into a plain of great breadth immediately in front, the character and appearance of which was very doubtful, and as it was now sunset, and we had journeyed upwards of 34 miles, I halted for the night at another puddle, rather larger than the last, but with sorry feed for the horses. At this place we dug our second well, by moonlight, as we had dug the first, and laid down on the ground to rest, fatigued, I candidly admit, both in mind and body.

The day had been exceedingly cold, as was the night, and on the following morning with the wind at S.S.E., and a clear and cloudless sky, the temperature still continued low. At about a mile from where we had bivouacked, we

arrived at the termination of the sandy ridge, and descended into the plain I had been reluctant to traverse in the uncertain light of evening. It proved firm, however, though it was evidently subject to floods. Samphire, salsolæ, and mesembryanthemum were growing on it, and one would have supposed from its appearance that it was a sea marsh. Mr. Stuart shot a beautiful ground parrot as we were crossing it, on a bearing of 345°, or little more than a N. and by W. course. At 6½ miles we ascended some heavy sandy ridges, without any regularity in their disposition, but lying in great confusion. Toiling over these, at seven or eight miles farther we sighted a fine sheet of water, bearing N. and distant about two miles. At another mile I altered my course to 325°, to pass to the westward of this new feature, which then proved to be a lake about the size of Lake Bonney, that is to say from 10 to 12 miles in circumference. The ridge by which we had approached it terminated suddenly and directly over it; to our right there were other ridges terminating in a similar manner, with rushy flats between them; eastward the country was dark and very low; to the north there was a desert of glittering white sand in low hillocks, scattered over with dwarf brush, and on it the heat was playing as over a furnace. Immediately beneath me to the west there was a flat leading to the shore of the lake, and on the western side a bright red sand hill, full eighty feet high, shut out the view in that quarter. This ridge

was not altogether a mile and a half in length, and behind it there were other ridges of the same colour bounding the horizon with edges as sharp as icebergs.

I did not yet know whether the waters of the lake were salt or fresh, although I feared they were salt. Looking on it, however, I saw clearly that it was very shallow; a line of poles ran across it, such as are used by the natives for catching wild fowl, of which there were an abundance, as well as of hematops on the water. As soon as we descended from the sand ridge we got on a narrow native path, that led us down to a hut, about 100 yards from the shore of the lake.

As we approached the water, the effluvia from it was exceedingly offensive, and the ground became a soft, black muddy sand. On tasting it we found that the water was neither one thing or the other, neither salt or fresh, but wholly unfit for use. Close to its margin there was a broad path leading to the eastward, or rather round the lake; and under the sand ridge to the west, were twenty-seven huts, but they had long been deserted, and were falling to decay. Nevertheless they proved that the waters of the lake were sometimes drinkable, or that the natives had some other supply of fresh water at no great distance, from whence they could easily come to take wild fowl, nor could I doubt such place would be the creek.

Notwithstanding that the water was so bad, I tried several places by digging, but invariably came to salt water, oozing through black mud, and I there-

fore presumed that a good deal of rain must have fallen hereabouts, to have tempered the water of the lake so much; which it struck me would otherwise have been quite saline. From the point where we first came down upon it, we traversed a flat beach covered with a short coarse rush, having the high red sand hill, of which I have spoken, to our left; before us a vast extent of low white sand, and to the eastward an extremely dark and depressed country. I was really afraid of entering on the scorching sands in our front, for we were now full 90 miles from the creek, and it was absolutely necessary, before I should exceed that distance, to find a more permanent supply of water than the wells we had dug on our way out. In order to ascertain the nature of the country more satisfactorily, however, I ascended the rugged termination of the sandy ridge, close to which we had been riding, and was induced, from what I then saw, to determine on a course somewhat to the west of north, since a due north course was evidently closed upon me; for I now saw that the country in that direction was hopeless, as well as in an easterly direction; but although I stood full 80 feet above the lake, I could not distinguish any thing like a hill on the distant horizon. To the westward, as a medium point, there were a succession of sandy ridges, similar to that on which I stood; but to the S.W. there seemed to be an interval of plain. As the thunder storm had reached as far as the place where we last slept, I did not doubt but that it had

also reached the lake, and on consideration determined to keep as northerly a course as circumstances would permit, in pushing into a country in which I was meeting new difficulties every hour. Descending, therefore, on a bearing of 340°, I went to a distance of six miles before coming to a small puddle at which I was glad to halt, it being the only drinkable water we had seen. Here we dug a third well, although, like the first, there was but little chance of benefiting by it. It behoved me therefore to be still more careful in increasing my distance from the creek, so that on the morning of the 17th I thought it prudent to search for some, and as the country appeared open to the south, I turned to that point in the hope of success.

We crossed some low sand hills to a swamp in which there was a good deal of surface water, but none of a permanent kind. We then crossed the N.W. extremity of an extensive grassy plain, similar to those I have already described, but infinitely larger. It continued, indeed, for many miles to the south, passing between all the sandy points jutting into it; and so closely was the Desert allied to fertility at this point, and I may say in these regions, that I stood more than once with one foot on salsolaceous plants growing in pure sand, with the other on luxuriant grass, springing up from rich alluvial soil. At two miles and a quarter from the swamp, striking a native path we followed it up to the S.W., and, at three-quarters of a mile, we reached two huts that had been built on a small rise of

ground, with a few low trees near them. Our situation was too precarious to allow of my passing these huts without a strict search round about, for I was sure that water was not far off; and at length we found a small, narrow, and deep channel of but a few yards in length, hid in long grass, at a short distance from them. The water was about three feet deep, and was so sheltered that I made no doubt it would last for ten days or a fortnight. Grateful for the success that had attended our search, I allowed the horses to rest and feed on the grass for a time; but it was of the kind from which the natives collect so much seed, and though beautiful to the eye, was not relished by our animals. The plains extended for miles to the south and south-east, with an aspect of great luxuriance and beauty; nor could I doubt they owed their existence to the final overflow of the large creek we had all along marked trending down to this point. Such, indeed, I felt from the first, even when I looked on its broad and glittering waters, would sooner or later be its termination, or that it would expend itself, less usefully, on the Stony Desert. As yet, however, there was no indication of our approach to that iron region. The plains were surrounded on all sides by lofty ridges of sand, and the whole scene bore ample testimony to the comparative infancy, if I may so express myself, of the interior. We next pursued a N.N.W. course into the interior, and soon left the grassy plains, crossing alternate sand ridges

and flats on a bearing of 346°, the whole country having a strong resemblance to that between Sydney and Botany Bay in New South Wales. On one of the ridges we surprised a native, who ran from us in great terror, and with incredible speed. About noon we crossed a plain, partly covered with stones and partly bare, and at the further extremity of it passed through a gorge between two sand hills into another plain that was barren beyond description, with only salsolaceous herbs. It had large white patches of clay on it, the shallow receptacles of rain water, but they were all dry. The plain was otherwise covered with low salsolæ, excepting on the higher ground, on which samphire alone was growing. It was surrounded on all sides by sand hills of a fiery red, and not even a stunted hakea was to be seen. From this plain we again crossed alternate sand hills and flats, the former covered with spinifex, the latter being quite denuded of all vegetation; but one of the horses at last knocking up, I was obliged to halt in this gloomy region, at the only puddle of rain water we had seen since leaving the grassy plain. I was sure, however, from the change that had taken place, and the character of the country around us, that we were approaching that feature, the continuance of which, in order to elucidate its probable origin, it had been a principal object in my present journey to ascertain. I felt so convinced on this point, that I could not have returned to Adelaide without having satisfied my mind on the

subject. I might, indeed, have had general ideas as to the past state of the depressed interior, from what I had already seen of it; but the Stony Desert was the key to disclose the whole,—and although I feared again to tread its surface, its existence so far away to the eastward of where I had first been on it, would at least tend to confirm my impressions as to what it had been.

It was clear, indeed, from the character of the country through which we had just passed, that we were again approaching the salt formation; more especially when, from the highest ground near us, I observed its generally dark aspect, and that there was the dry bed of a large salt lagoon directly in our course. We here dug a fourth well: the water was extremely muddy and thick, for the basin in which it was contained was very shallow, and the wind constantly playing on its surface raised waves that had stirred up the mud; but as there was more water than usual, I hoped that by deepening, it might settle. This was nothing new to us, for not only on our journey to Lake Torrens and to the N.W., had we subsisted on similar beverage, but the water at the Depôt at Fort Grey was half mud, and perfectly opaque. However, it was a matter of necessity to retain it here if possible, and we therefore took the best measures in our power to do so.

On the 19th we resumed our journey on the former bearing, the wind blowing keen from the

south. At about a mile and a half we reached the salt lagoon, as it appeared to be in the distance, but which proved to be rather a flooded plain. It was about two miles broad, and three and three-quarters long, and was speckled over rather than covered with salt herbs. At this time, also, we had an immense barren plain to our left, bounded all around, but more particularly to the north, by sand hills; over these we toiled for nine miles, when at their termination the centre of the plain bore 176° to the east of north, or nearly south. At five miles and a half further, having previously crossed a small stony plain, succeeded by sand ridges and valleys, both covered with spinifex, we ascended a pointed hill that lay directly in our course, and from it beheld the Stony Desert almost immediately below our feet. I must acknowledge, that coming so suddenly on it, I almost lost my breath. It was apparently unaltered in a single feature: herbless and treeless, it occupied more than one half of the visible horizon, that is to say, from 10° east of north, westward round to south. As to the eastward, so here the ridges we had just crossed abutted upon it, and as many of them were lower than the line of the horizon, they looked like sea dunes, backed by storm clouds, from the dusky colour of the plain.

After surveying this gloomy expanse of stone-clad desert we looked for some object on the N.W. horizon upon which to move across it, but none presented itself, excepting a very distant sand hill

bearing 308°, towards which I determined to proceed. We accordingly descended to the plain, and soon found ourselves on its uneven surface. There was a narrow space destitute of stones at the base of the sand hill, stamped all over with the impressions of natives' feet. From eighty to one hundred men, women, and children must have passed along there; and it appeared to me that this had been a migration of some tribe or other during the wet weather, but it was very clear those poor people never ventured on the plain itself.

Descended from our high position, we could no longer see the sand hill just noticed, but held on our course by compass like a ship at sea, being two hours and forty minutes in again sighting it; and reaching it in somewhat less than an hour afterwards, calculated the distance at thirteen miles. As we approached, it looked like an island in the midst of the ocean; but we found a large though shallow sheet of water amongst the stones under it, for which we were exceedingly thankful. From this point we crossed to another sand hill that continued northerly further than we could see, having the Desert on either hand. Our horses beginning to flag, I halted at five on the side of the ridge, near a small puddle that had only water enough for them to drink off at once.

The morning of the 20th was bitterly cold, with the wind at S.S.E., and I cannot help thinking that there are extensive waters in some parts of the in-

terior, over which it came: the thermometer stood at 42°. We started on a course of 335° for a distant sandy peak rising above the general line of the horizon. At a mile, one of the horses fortunately got bogged in a little narrow channel just like that in the grassy plain; I say fortunately, for we might otherwise have passed the water it contained without knowing it, so completely was it shaded. In looking along the channel more closely, we discovered a little pool about three yards long and one broad, but deep. At this we breakfasted and watered the horses, and then pushed on. The lodgment of this water had been caused by local drainage, and was evident from the green feed round about. Here again it appeared we had occasion to be thankful, for on this supply I hoped we might safely calculate for a week at least, so that we still held on our course with more confidence, keeping at the base of the ridge, and passing an extent of five miles through an open box-tree forest, every tree of which was dead. The whole scene being one of the most profound silence and marked desolation, for here no living thing was to be seen.

At nine miles we ascended the ridge, and from it the Desert appeared to be interminable from N. to N.E., but a few distant sand hills now shewed themselves to the eastward of the last mentioned point. We then descended into a valley of sand and spinifex, and at four miles and a half ascended an elevated

peak in a sandy ridge lying in our way. From this, the view to the north-west was over a succession of sand hills. The point we stood upon, as well as the ridge, was flanked southwards by an immense plain of red sand and clay, and to the N.E. by a similar but smaller plain. Crossing a portion of the great plain, at four miles and a half we ascended another peak, and then traversed a narrow valley crossing from it into a second valley, down which we travelled for six miles.

At that distance it was half a mile in breadth, and there was a little verdure near some gum-trees, but no water. As we were searching about, a cockatoo, (Cacatua Leadbeateri) flew over the sand hill to our right, and pitched in the trees; we consequently crossed to the opposite side and halted for the night, where there was a good deal of green grass for the horses, but no water in the contiguous valley.

CHAPTER II.

THE HORSES — ASCEND THE HILLS — IRRESOLUTION AND RETREAT — HORSES REDUCED TO GREAT WANT — UNEXPECTED RELIEF — TRY THE DESERT TO THE N.E. — FIND WATER IN OUR LAST WELL — REACH THE CREEK — PROCEED TO THE EASTWARD — PLAGUE OF FLIES AND ANTS — SURPRISE AN OLD MAN — SEA-GULLS AND PELICANS — FISH — POOL OF BRINE — MEET NATIVES — TURN TO THE N.E. — COOPER'S CREEK TRIBE, THEIR KINDNESS AND APPEARANCE — ATTEMPT TO CROSS THE PLAINS — TURN BACK — PROCEED TO THE NORTHWARD — EFFECTS OF REFRACTION — FIND NATIVES AT OUR OLD CAMP AND THE STORES UNTOUCHED — COOPER'S CREEK, ITS GEOGRAPHICAL POSITION.

I HAD taken all the horses, with the exception of one, out with me on this journey, and as they will shortly bear a prominent part in this narrative, I will make some mention of them. My own horse was a grey—for which reason I called him Duncan,—I had ridden him during the whole period of my wanderings, and think I never saw an animal that could endure more, or suffered less from the want of water; he was aged, and a proof, that in the brute creation as well as with mankind, years give a certain stamina that youth does not possess. This animal, as the reader will believe, knew me well, as indeed did all the horses, for I had stood by to see them watered many a time. Mr. Stuart rode Mr. Browne's horse, a

little animal, but one of great endurance also; Mack used a horse we called the Roan, a hunter that had been Mr. Poole's. Morgan rode poor Punch, whose name I have before had occasion to mention, and who, notwithstanding subsequent rest, had not recovered from the fatigues of his northern excursion. Besides these we had four pack horses:—Bawley, a strong and compact little animal, with a blaze on the forehead, high spirited, with a shining coat, and having been a pet, was up to all kind of tricks, but was a general favourite, and a nice horse;—the other was Traveller, a light chesnut, what the hunter would call a washy brute, always eating and never fat;—the Colt, so called from his being young, certainly unequal to such a journey as that on which he was taken;—and Slommy, another aged horse. During the summer, Traveller had had a great discharge from the nose, and I was several times on the point of ordering him to be shot, under an apprehension that his disease was the glanders; but, although the colt and my own horse contracted it, I postponed my final mandate, and all recovered; however, he continued weak. At this time they were unshod, and had pretty well worn their hoofs down to the quick, insomuch that any inequality in the ground made them limp, and it was distressing to ride them; but, notwithstanding, they bore up singularly against the changes and fatigues they had to go through.

From a small rising ground near where we

stopped in the valley, on the occasion of which I am speaking, and in the obscure light of departing day we saw to the N.N.W. a line of dark looking hills, at the distance of about ten or twelve miles, but we could not discover tree or bush upon them, all we could make out was that they were dark objects above the line of horizon, and that the intervening country seemed to be as dark as they were. The weather had changed from cold to hot, the wind having flown from S. to the N.E., and the day and night were exceedingly warm. I was sorry to observe, too, that the horses had scarcely touched the grass on which, for their sakes, I had been tempted to stop, and that they were evidently suffering from the previous day's journey of from 34 to 36 miles, that being about the distance we had left the water in the grassy valley. Before mounting, on the morning of the 21st, Mr. Stuart and I went to see if we could make out more than we had been able to do the night before, what kind of country was in front of us, but we were disappointed, and found that we should have to wait patiently until we got nearer the hills to judge of their formation. About half a mile below where we had slept, the valley led to the N.N.E., and on turning, we found it there opened at once upon the Stony Desert; but the hills were now hid from us by sandy undulations to our left, and even when we got well into the plain we could hardly make out what the hills were. As we neared them, however, we observed that

they were nothing more than high sand hills, covered with stones even as the desert itself, to their tops. That part of it over which we were riding also differed from any other portion, in having large sharp-pointed water-worn rocks embedded in the ground amongst the stones, as if they had been so whilst the ground was soft. There was a line of small box-trees marking the course of a creek between us and the hills, and a hope that we should find water cheered us for a moment, but that ray soon vanished when we saw the nature of its bed. We searched along it for about half an hour in vain, and then turned to the hills and ascended to the top of one of the highest, about 150 feet above the level of the plain. From it the eye wandered hopelessly for some bright object on which to rest. Behind us to the south-east lay the sand hills we had crossed, with the stony plain sweeping right round them, but in every other direction the dark brown desert extended. The line of the horizon was broken to the north-west and north by hills similar to the one we had ascended; but in those directions not a blade of grass, not a glittering spot was to be seen.

At this point, which I have placed in lat. 25° 54′ and in long. 139° 25′, I had again to choose between the chance of success or disaster, as on the first occasion; if I went on and should happen to find water, all for the time would be well, if not, destruction would have been inevitable. I was now nearly 50 miles from water, and feared that, as it was, some

of my horses would fall before I could get back to it, yet I lingered undecided on the hill, reluctant to make up my mind, for I felt that if I thus again retired, it would be a virtual abandonment of the task undertaken. I should be doing an injustice to Mr. Stuart and to my men if I did not here mention that I told them the position we were placed in, and the chance on which our safety would depend if we went on. They might well have been excused if they had expressed an opinion contrary to such a course, but the only reply they made was to assure me that they were ready and willing to follow me to the last. After this, I believe I sat on the hill for more than half an hour with the telescope in my hand, but there was nothing to encourage me onwards; our situation, however, admitted not of delay. I might, it is true, have gone on and perished with all my men; but I saw neither the credit nor the utility of such a measure. I trust the reader will believe that I would not have shrunk from any danger that perseverance or physical strength could have overcome; that indeed I did not shrink from the slow fate, which, as far as I could judge, would inevitably have awaited me if I had gone on; but that in the exercise of sound discretion I decided on falling back. The feeling which would have led me onwards was similar to that of a man who is sensible of having committed an error, yet is ashamed to make an apology, and who would rather run the risk of being shot, than of having the charge of pusillanimity fixed

upon him; but I have never regretted the step I took, and it has been no small gratification to me to find that the Noble President of the Royal Geographical Society, Lord Colchester, when addressing the members of that enlightened body, in its name presenting medals to Dr. Leichhardt and myself, for our labours in the cause of Geography, alluded to and approved "the prudence with which further advance was abandoned, when it could only have risked the loss of those entrusted to my charge."

We slowly retraced our steps to the valley in which we had slept, and I stopped there for half an hour, but none of the horses would eat, with the exception of Traveller, and he certainly made good use of his time. The others collected round me as I sat under a tree, with their heads over mine, and my own horse pulled my hat off my head to engage my attention. Poor brute! I would have given much at that moment to have relieved him, but I could not. We were all of us in the same distress, and if we had not ultimately found water must all have perished together. Finding that they would not eat, we saddled and proceeded onwards, I should say backwards—and at 10 P.M. we were on the sand ridges. At the head of the valley Traveller fell dead, and I feared every moment that we should lose the Colt. At one I stopped to rest the horses till dawn, and then remounted, but Morgan and Mack

got slowly on, so that I thought it better to precede them, and if possible to take some water back to moisten the mouth of their horses, and I accordingly went in advance with Mr. Stuart. I thought we should never have got through the dead box-tree forest I have mentioned, however we did so about 11 A.M., and made straight for the spot where we expected to relieve both ourselves and our horses, but the water was gone. Mr. Stuart poked his fingers into the mud and moistened his lips with the water that filled the holes he had made, but that was all. We were yet searching for water when Morgan and Mack appeared, but without the colt; fortunately they had descended into the valley higher up, and had found a little pool, which they had emptied, under an impression that we had found plenty; and were astonished at hearing that none any longer remained. In this situation, and with the apparent certain prospect of losing my own and Mr. Browne's horse, and the colt which was still alive when the men left him, not more than a mile in the rear, we continued our search for water, but it would have been to no purpose. Suddenly a pigeon topped the sand hill—it being the first bird we had seen—a solitary bird—passing us like lightning, it pitched for a moment, and for a moment only, on the plain, about a quarter of a mile from us, and then flew away. It could only have wetted its bill, but Mr. Stuart had marked the spot, and there was water. Perhaps I ought to dwell for a moment on this singular occurrence, but I leave

it to make its own impression on the reader's feelings. I was enabled to send back to the colt, and we managed to save him, and as there was a sufficiency of water for our consumption, I determined to give the men a day of rest, and to try if I could find a passage across the Desert a little to the eastward of north, and with Mr. Stuart proceeded in that direction on the morning of the 24th; but at 3 P.M. we were out of sight of all high land. The appearance of the Desert was like that of an immense sea beach, and large fragments of rock were imbedded in the ground, as if by the force of waters, and the stones were more scattered, thus shewing the sandy bed beneath and betwixt them. The day was exceedingly hot, and our horses' hoofs were so brittle that pieces flew off them like splinters when they struck them against the stones. We were at this time about sixteen or seventeen miles from the sand hill where we had left the men. The Desert appeared to be taking a northerly direction, and certainly was much broader than further to the westward, making apparently for the Gulf of Carpentaria; nor could I doubt but that there had once been an open sea between us and it. We reached our little bivouac at 9 P.M. both ourselves and our horses thoroughly wearied, and disappointed as we had been, I regretted that I had put the poor things to unnecessary hardships. Perhaps I was wrong in having done so, but I could not rest. Our latitude here was 26° 26′ and our long. by account 139° 21′. In the morning we

crossed the remaining portion of the Desert, as I had determined on making the best of my way to the creek, and passing the sandy ridges reached our first water (the 4th going out), about sunset or a little before. Water still remained, but it was horridly thick, and in the morning smelt so offensive that it was loathsome to ourselves and the animals. Our great, indeed our only, dependence then was on the water in the little channel on the grassy plain; at this we arrived late on the afternoon of the 25th. Another day and we should again have been disappointed: the water on which I had calculated for a fortnight was all but gone. In the morning we drained almost the last drop out of the channel. We were now about 92 miles from the creek, without the apparent probability of relief till we should get to it, for it seemed hopeless to expect that we should find any water in the wells we had dug. Crossing the grassy plains on an east-north-east course, we passed the salt lake about 10 A.M. to our left, and ran along the sandy ridges between it and our encampment of the 15th, where we had made our second well, at 6 P.M., but it was dry and the bottom cracked and baked.

I would gladly have given my poor horses a longer rest than prudence would have justified, but we had not time for rest. At 8 we again mounted, and went slowly on; and when darkness closed around us lit a small lamp, and one of us walking in front led the way for the others to

follow; thus tracking our way over those dreary regions all night long, we neared our last remaining well, 36 miles distant from the creek, just as morning dawned. Objects were still obscure as we approached the spot where our hopes rested, for our horses could hardly drag one foot after the other. Mr. Stuart was in front, and called to me that he saw the little trees under whose shade we had slept; soon after he said he saw something glittering where the well was, and immediately after shouted out, "Water, water." It is impossible for me to record all this without a feeling of more than thankfulness to the Almighty Power that guided us. At this place we were still 180 miles from Fort Grey; and if we had not found this supply, it is more than probable the fate of our horses would have sealed our own. As it was we joyfully unsaddled, and, after watering, turned them out to feed. Singular it was that the well on which we had least dependence, and from which we had been longest absent, should thus have held out—but so it was. At 9 we resumed our journey, there being about half a gallon a-piece for the horses just before we started; but although this, and the short rest they had, had relieved them, they got on slowly; and it was not until after midnight of the 27th, A.M. indeed of the 28th, that we reached the creek, with two short of our complement of horses, the Roan and the Colt both having dropped on the plains, but fortunately at no great distance, so that we recovered them in the course of the day.

It will naturally be supposed that, arrived at a place of safety, we here rested for a while; but my mind was no sooner relieved from one cause for anxiety, than it was filled with another. If I except the thunder-storm which had enabled me to undertake my late journey from the creek, no rain had fallen, the weather had suddenly become oppressively hot, with a sky as clear as ether. I had still the mountain range to the N.E. to examine, and the upper branches of the creek, and in this necessary survey I knew no time was to be lost. Indeed I doubted if my return to the Depôt was not already shut out, by the drying up of the water in Strzelecki's Creek, although I hoped Mr. Browne still held his ground; but not only was I anxious on these heads, but as to our eventual retreat from these heartless regions. I would gladly have rested for a few days, for I was beginning to feel weak. From the 20th of July, and it was now the last day but two of October, I had been in constant exercise from sunrise to sunset; and if I except the few days I had rested at the Depôt, had slept under the canopy of heaven. My food had been insufficient to support me, and I had a malady hanging upon me that was slowly doing its work; but I felt that I had no time to spare, and, as I could not justify indulgence to myself, so on the 29th we commenced our progress up the creek, but halted at six miles on a beautiful sheet of water, and with every promise of success. In the course of the day we

passed a singularly large grave. It was twenty-three feet long, and fourteen broad. The boughs on the top of it were laid so as to meet the oval shape of the mound itself, but the trees were not carved, nor were there any walks about it, as I had seen in other parts of the continent.

Native Grave.

Before we commenced our journey up the creek, I determined to secrete all the stores I could, in order to lighten the loads of the horses as much as possible, for they were now almost worn out; but it was difficult to say where we should conceal them, so as to be secure from the quick eyes of the natives. At first I thought my best plan would be to dig a hole and bury them, and then to light a fire, so as to obliterate the marks; but I changed my purpose, and placed them under a rhagodia

bush, a short distance from the creek, and arranged some boughs all round it. In this place I hoped they would escape observation, for there were one or two things I should have exceedingly regretted to lose.

The weather had been getting warmer and warmer, and it had at this time become so hot that it was almost intolerable, worse indeed than at this season the previous year. The 30th was a day of oppressive heat, and the flies and mosquitoes were more than usually troublesome. I have not said much of these insects in the course of this narrative, for after all they are secondary objects only; but it is impossible to describe the ceaseless annoyance of these and a small ant. The latter swarmed in myriads in the creek and on the plains, and what with these little creatures at night, and the flies by day, we really had no rest. I continually wore a veil, or I could not have attended to our movements, or performed my duties. It is probable that being in the neighbourhood of water they were more numerous, but here they were a perfect plague, and in our depressed and wearied condition we, perhaps, felt their attacks more than we should otherwise have done. We commenced our journey at seven, and crossing the creek at three-quarters of a mile, ascended a small sand hill upon its proper left bank. Where we had crossed the channel was perfectly dry, but from the sand hill another magnificent sheet of water stretched away to the south-east as far as we could see.

Cooper's Creek.

From this point the creek appeared to be bounded by forest land, partly scrubby and partly grassed. To the south there were flats seemingly subject to floods, and lightly timbered, and beyond these were low sand hills. To the S.W. a high line of trees marked the course of a tributary from that quarter. To the north the country was exceedingly sandy and low, as well as to the east; and the direction of the sand ridges was only 5° to the west of north, so that from this point to our extreme west they gradually alter their line 17°, as in 138° of longitude they ran 22° to the west of north. I was not able to take more than one bearing from the hill I had ascended, to a remarkable flat-topped hill nearly N.E. I now crossed the creek on an east course, and traversed sandy plains, and low undulations,

there being a tolerable quantity of grass on both; and at four miles changed the route a little to the northward for a small conical sand hill, from which the flat-topped hill bore 41°, and from it some darker hills were visible, somewhat more to the eastward, and as they appeared to be different from the sand ridges, I again changed my course for them, and crossing the bed of the creek at four miles, ascended a small stony range trending to the eastward, the creek being directly at their base. Following up its proper left bank I ascended another part of the range at three miles and a half, from which the flat-topped hill bore 24°, and the last hill I had ascended 239°. The channel of the creek had been dry for several miles, but we now saw a large sheet of water bearing due east, distant two miles, to which we made our way, and then stopped. From the top of this range the creek seemed to pass over extensive and bare plains in many branches, southward there were some stony hills, treeless and herbless, like those nearer to us. I was fairly driven down to the valley by the flies, as numerous on the burning stones on the top of the hill as any where else, and I left a knife and a pocket handkerchief behind me. Notwithstanding the magnificent sheet of water we were now resting near, I began thus early to doubt the character of this creek. It had changed so often during the day, at one place having a broad channel, at another splitting into numerous small ones, having a

great portion of its bed dry, and then presenting large and beautiful reaches to view, that I hardly knew what opinion to form of it; I also observed that it was leading away from the hills and taking us into a low and desolate region, almost as bad as that to the westward; however, time alone was to prove whether I was right in my surmises.

In the afternoon two natives made their appearance on the opposite side of the water, and I walked over to them, as I could not by any signs induce them to come to us. They were not bad looking men, and had lost their two front teeth of the upper jaw. To one I gave a tomahawk, and a hook to the other, but when I rose to depart, they gave them both back to me, and were astonished to find that I had intended them as presents. Seeing, I suppose, that we intended them no injury, these men in the morning went on with their ordinary occupations, and swimming into the middle of the water began to dive for mussels. They looked like two seals in the water with their black heads, and seemed to be very expert: at all events they were not long in procuring a breakfast.

Notwithstanding the misgivings I had as to the creek, the paths of the natives became wider and wider as we advanced. They were now as broad as a footpath in England, by a road side, and were well trodden; numerous huts of boughs also lined the creek, so that it was evident we were advancing into a well peopled country, and this circum-

stance raised my hopes that it would improve. As, however, our horses had no longer a gallop in them, we found it necessary to keep a sharp look out; although the natives with whom we had communicated, did not appear anxious to leave the place as they generally are to tell the news of our being on the creek to others above us.

On the 31st we started at 7 A.M, and at a mile and a half found ourselves at the termination of the stony ranges to our left. They fell back to the north, and a larger plain succeeded them. At two miles we crossed a small tributary, and passed over a stony plain, from which we entered an open box-tree forest extending far away to our left. At five miles and a half we found ourselves again on the banks of the creek, where it had an upper and a lower channel, that is to say, it had a lower channel for the stream, and an upper one independently of it. In the lower bed there was a little water, and we therefore stopped for a short time, the day being exceedingly hot. While here we saw a native at some water a little lower down, mending a net, but did not call to him. On resuming our journey we kept in the upper channel, and had not ridden very far when we saw a native about 150 yards ahead of us, pulling boughs. On getting nearer we called out to him, but to no purpose. At the distance of about 70 yards, we called out again, but still he did not hear, perhaps because of the rustling of the boughs he was breaking down. At

length he bundled them up, and throwing them over his shoulder, turned from us to cross to the lower part of the creek, when suddenly he came bolt up against us. I cannot describe his horror and amazement,—down went his branches,—out went his hands,—and trembling from head to foot, he began to shout as loud as he could bawl. On this we pulled up, and I desired Mr. Stuart to dismount and sit down. This for a time increased the poor fellow's alarm, for he doubtless mistook man and horse for one animal, and he stretched himself out in absolute astonishment when he saw them separate. When Mr. Stuart sat down, however, he stood more erect, and he gradually got somewhat composed. His shouting had brought another black, who had stood afar off, watching the state of affairs, but who now approached. From these men I tried to gather some information, and my hopes were greatly raised from what passed between us, insomuch that one of the men could not help expressing his hope that we were now near the long sought for inland sea.

On my seeking to know, by signs, to what point the creek would lead us, the old man stretched out his hand considerably to the southward of east, and spreading out his fingers, suddenly dropped his hand, as if he desired us to understand that it commenced, as he shewed, by numerous little channels uniting into one not very far off. On asking if the natives used canoes, he threw himself into the

attitude of a native propelling one, which is a peculiar stoop, in which he must have been practised. After going through the motions, he pointed due north, and turning the palm of his hand forward, made it sweep the horizon round to east, and then again put himself into the attitude of a native propelling a canoe. There certainly was no mistaking these motions. On my asking if the creek went into a large water, he intimated not, by again spreading out his hand as before and dropping it, neither did he seem to know anything of any hills. The direction he pointed to us, where there were large waters, was that over which the cold E.S.E. wind I have noticed, must have passed. This poor fellow was exceedingly communicative, but he did not cease to tremble all the while we were with him. After leaving him, the creek led us up to the northward of east, and we cut off every angle by following the broad and well beaten paths crossing from one to the other. At three miles I turned to ascend a conical sand hill, from whence the country appeared as follows: to the north were immense plains, with here and there a gum-tree on them; they were bounded in the distance by hills that I took to be the outer line of the range we purposed visiting; to the eastward the ground was undulating and woody; and southward, the prospect was bounded by low stony elevations, or a low range. The course of the creek was now north-east, in the direction of two distant sand hills. We now ran along it for

seven miles, under an open box-tree forest, varying in breadth from a quarter of a mile to two miles; the creek frequently changed from a broad channel to a smaller one, but still having splendid sheets of water in it. At length, as we pushed up, it became sandy, and the lofty gum-trees that had ornamented it, gradually disappeared. Nevertheless we encamped on a beautiful spot.

The 1st of November broke bright and clear over us. Started at seven, the poor horses scarcely able to draw one leg after the other, the Roan having worn his hoof down the quick was exposed and raw, and he walked with difficulty. At a mile and a half we ascended an eminence, and to the eastward, saw a magnificent sheet of water to which we moved, and at five miles reached a low stony range, bounding the creek to the north; having ridden along a broad native path the whole of that distance, close to the edge of the above mentioned water. There were large rocks in the middle of it, and pelicans, one swan, several sea-gulls, and a number of cormorants on its bosom, together with many ducks, but none would let us within reach. We next ran on a bearing of 75°, or nearly east, along a large path, crossing numerous small branches of the creek, with deep and sandy beds, and occasionally over small stony plains. At noon we were at some distance from the creek, but then went towards it. The gum-trees were no longer visible, but melaleucas, from fifteen to twenty feet high, lined its banks like a copse of

young birch. We now observed a long but somewhat narrow sheet of water, to which we rode; our suspicions as to its quality being roused by its colour, and the appearance of the melaleuca. It proved, as we feared, to be slightly brackish, but not undrinkable. Near the edge of the water, or rather about four or five feet from it, there was a belt of fine weeds, between which and the shore there were myriads of small fish of all sizes swimming, similar to those we had captured to the westward, in the fourth or O'Halloran's Creek. Here then was not only the clue as to how fish got into that isolated pond, but a proof of the westerly fall of the interior, since there was now no doubt whatever, but that the whole of the country Mr. Browne and I had traversed, even to the great sand hills on this side the Stony Desert, was laid under water, and by the overflow of this great creek filled the several creeks, and inundated the several plains that we had crossed. By so unexpected a fact, was this material point discovered. The Roan, at this time, could hardly walk, and not knowing when or at what distance we might again find water, or what kind of water it would be, I stopped on reaching the upper end of this pool, but even there it had a nasty taste, nor were any fish to be seen; a kind of weed covered the bed of the creek, and it looked like an inlet of the sea.

I was exceedingly surprised that we had not seen more natives, and momentarily expected to come on some large tribe, but did not, and what was very

singular, all the paths were to the right, and none on the southern bank of the creek.

The weather continued intensely hot, and the flies swarmed in hundreds of thousands. The sky was without a cloud, either by day or night, and I could not but be apprehensive as to the consequences if rain should not fall; it was impossible that the largest pools could stand the rapid evaporation that was going on, but I did not deem it right to unburden my mind, even to Mr. Stuart, at this particular juncture.

On the morning of the 2nd of November the horses strayed for the first time, and delayed us for more than two hours, and we were after all indebted to three natives for their recovery, who had seen them and pointed out the direction in which they were. It really was a distressing spectacle to see them brought up, but their troubles and sufferings were not yet over. The Roan was hardly able to move along, and in pity I left him behind to wander at large along the sunny banks of the finest watercourse we had discovered.

Starting at 10 A.M. we crossed the creek, and traversed a large sandy plain, intersected by numerous native paths, that had now become as wide as an ordinary gravel walk. From this plain we observed a thin white line along the eastern horizon. The plain itself was also of white sand, and had many stones upon it, similar in substance and shape to those on the Stony Desert, but there was, not-

withstanding, some grass upon it. A little above where we had slept, we struck a turn or angle of the creek where there was a beautiful sheet of water, but of a deep indigo blue colour. This was as salt as brine, insomuch that no animal could possibly have lived in it, and we observed water trickling into it from many springs on both sides. At four miles when we again struck the creek, after having crossed the plain, the water was perfectly fresh and sweet in a large pool close to which we passed. Here again there were several sea-gulls sitting on the rocks in the water, and a good many cormorants in the trees, yet I do not think there were any fish in this basin; I have no other reason for so thinking, however, than that we never saw any, either swimming in the water or rising to its surface in the coolness of evening on the sheets of fresh water. There might, however, have been fish of large size in the deep pools of this creek, although I would observe that I had two reasons for believing otherwise. The first was, that, the meshes of the nets used by the natives, of which we examined several hanging in the trees, were very small, and that among the fish bones at the natives' fires, we never saw any of a larger size than those we had ourselves captured, and it was evident that at this particular time, it was not the fishing season. I was led to think, that the water in which we noticed so many swimming about, was sacred, and that it is only when the creek overflows, that the fish are generally distributed along its whole line, that the natives

take them. Certainly, to judge from the smooth and delicate appearance of the weeds round that sheet of water the fish were not disturbed.

We had been riding for some time on the proper left bank of the creek, but I at length crossed to the right and altered my course to E.S.E., but shortly afterwards ran due east across earthy plains covered with grass in tufts and very soft, but observing that I had got outside of the native tracks, and that there was no indication of the creek in front, I turned to the S.E. and at five miles struck a small sandy channel which I searched in vain for water; I therefore left it, crossing many similar channels still on a S.E. course; but observing that they all had level sandy beds, I gave up the hope of finding water in them and turned to the south, as the horses were not in a condition to suffer from want. At about two miles I ascended a sand hill, but could not see any thing of the creek; it was now getting late and two of the horses were hardly able to get along. Had we halted then, there was not a tree or a bush to which we could have tethered our animals, anxious too to get them to water I turned to the west, and at a mile got on a native path, that ultimately led me to the creek, and we pulled up at a small pond, where there was better feed than we had any right to expect.

We had hardly arranged our bivouac, when we heard a most melancholy howling over an earthen bank directly opposite to us, and saw seven black

heads slowly advancing towards us. I therefore sent Mr. Stuart to meet the party and bring them up. The group consisted of a very old blind man, led by a younger one, and five women. They all wept most bitterly, and the women uttered low melancholy sounds, but we made them sit down and managed to allay their fears. It is impossible to say how old the man was, but his hair was white as snow, and he had one foot in the grave.

These poor creatures must have observed us coming, and being helpless, had I suppose thought it better to come forward, for they had their huts immediately on the other side of the bank over which they ventured. We gave the old man a great coat, as the most useful present, and he seemed delighted with it. I saw that it was hopeless to expect any information from this timid party, so I made no objection to their leaving us after staying for about half an hour. Our latitude here, by an altitude of Jupiter, was 27° 47′ S.; our longitude by account 141° 51′ E.

The plains we had crossed during the day were very extensive, stretching from the north-west, to the south-east, like an open sea. They were thinly scattered over with box-trees, and comprised hundreds of thousands of acres of flooded grassy land. It is worthy of remark that none of these plains existed to the south of the creek, in which quarter the country was very barren, neither were there any native paths. We were at this time

in too low a position to see any of the mountain ranges of which I have spoken. As the old native with the boughs had told us, the creek led us to the southward of east, and consequently away from them, and I feared that his further information would prove correct, and that we should soon arrive at its commencement.

The morning of the 3rd of November was as cloudy as the night of the 2nd had been, during which it blew violently from the N.W., and a few heat-drops fell, but without effect on the temperature. One of the horses got bogged in attempting to drink, and Mack's illness made it nine before we mounted and resumed our journey up the creek, on a N.N.E. course, but it gradually came round to north. At six miles we crossed the small and sandy bed of a creek coming from the stony plains to the south, and beneath a tree, near two huts, observed a large oval stone. It was embedded in the ground, and was evidently used by the natives for pounding seeds. We now proceeded along a broad native path towards some gum-trees, having stony undulating hills upon our right. Underneath the trees there was a fine deep pool in the channel of the creek, which had again assumed something of its original shape; but as we were in an immense hollow or bowl, and the view was very limited, I branched off to the hills, then not more than half a mile distant. From their summit the country to the south and south-west appeared

darkly covered with brush; to the west, there were numerous stony undulations; northward and to the east were immense grassy plains, with many creeks, all making for a common centre upon them. In the near ground to the south-east, the surface of the country was of fine white sand, partly covered with salsolaceous plants, with small fragments of stone, and patches of more grassy land. There was no fixed point on which to take a bearing, nor could we see anything of the higher ranges, now to the north-west of us.

In returning to the creek, we observed a body of natives to our left. They were walking in double file, and approaching us slowly. I therefore pulled up, and sent Mr. Stuart forward on foot, following myself with his horse. As he neared them the natives sat down, and he walked up and sat down in front of them. The party consisted of two chiefs and fourteen young men and boys. The former sat in front and the latter were ranged in two rows behind. The two chiefs wept as usual, and in truth shed tears, keeping their eyes on the ground; but Mr. Stuart, after the interview, informed me that the party behind were laughing at them and sticking their tongues in their cheeks. One of the chiefs was an exceedingly tall man, since he could not have measured less than six feet three inches, and was about 24 years of age. He was painted with red ochre, and his body shone as if he had been polished with Warren's best blacking. His companion was older

and of shorter stature. We soon got on good terms with them, and I made a present of a knife to each. They told us, as intelligibly as it was possible for them to do, that we were going away from water; that there was no more water to the eastward, and, excepting in the creek, none anywhere but to the N.E. I had observed, indeed, that the native paths had altogether ceased on the side of the creek on which we then were (the south or left bank), and the chief pointed that fact out to me, explaining that we should have to cross the creek at the head of the water, under the trees, and get on a path that would lead us to the N.E. On this I rose up and mounting my horse, riding quietly towards it, descended into the bed of the creek, in which the natives had their huts, but their women and children were not there. The two chiefs and the other natives had followed, but, the former only crossed the creek and accompanied us. We almost immediately struck on the native path which, as my tall friend had informed me, led direct to the N.E.

I was not at first aware, what object our new friends had in following or rather accompanying us; but, at about a mile and a half, we came to a native hut at which there was an old man and his two lubras. The tall young man introduced him to us as his father, in consequence of which I dismounted, and shook hands with the old gentleman, and, as I had no hatchet or knife to give him, I parted my blanket and gave him half of it. We then pro-

ceeded on our journey, attended as before, and at a mile, came on two huts, at which there were from twelve to fifteen natives. Here again we were introduced by our long-legged friend, who kept pace with our animals with ease, and after a short parley once more moved on, but were again obliged to stop with another tribe, rather more numerous than the last, who were encamped on a dirty little puddle of water that was hardly drinkable; however, they very kindly asked us to stay and sleep, an honour I begged to decline. Thus, in the space of less than five miles, we were introduced to four different tribes, whose collective numbers amounted to seventy-one. The huts of these natives were constructed of boughs, and were of the usual form, excepting those of the last tribe, which were open behind, forming elliptic arches of boughs, and the effect was very pretty.

These good folks also asked us to stop, and I thought I saw an expression of impatience on the countenance of my guide when I declined, and turned my horse to move on. We had been riding on a sandy kind of bank, higher than the flooded ground around us. The plains extended on either side to the north and east, nor could we distinctly trace the creek beyond the trees at the point we had crossed it, but there were a few gum-trees separated by long intervals, that still slightly marked its course. When we left the last tribe, we rode towards a sand hill about half a mile in front, and had

scarcely gone from the huts when our ambassadors, for in such a light I suppose I must consider them, set off at a trot and getting a-head of us disappeared over the sand hill. I was too well aware of the customs of these people, not to anticipate that there was something behind the scene, and I told Mr. Stuart that I felt satisfied we had not yet seen the whole of the population of this creek; but I was at a loss to conjecture why they should have squatted down at such muddy puddles, when there were such magnificent sheets of water for them to encamp upon, at no great distance; however, we reached the hill soon after the natives had gone over it, and on gaining the summit were hailed with a deafening shout by 3 or 400 natives, who were assembled in the flat below. I do not know, that my desire to see the savage in his wild state, was ever more gratified than on this occasion, for I had never before come so suddenly upon so large a party. The scene was one of the most animated description, and was rendered still more striking from the circumstance of the native huts, at which there were a number of women and children, occupying the whole crest of a long piece of rising ground at the opposite side of the flat.

I checked my horse for a short time on the top of the sand hill, and gazed on the assemblage of agitated figures below me, covering so small a space that I could have enclosed the whole under a casting net, and then quietly rode down into the flat, followed by Mr. Stuart and my men, to one

of whom I gave my horse when I dismounted, and then walked to the natives, by whom Mr. Stuart and myself were immediately surrounded.

Had these people been of an unfriendly temper, we could not by any possibility have escaped them, for our horses could not have broken into a canter to save our lives or their own. We were therefore wholly in their power, although happily for us perhaps, they were not aware of it; but, so far from exhibiting any unkind feeling, they treated us with genuine hospitality, and we might certainly have commanded whatever they had. Several of them brought us large troughs of water, and when we had taken a little, held them up for our horses to drink; an instance of nerve that is very remarkable, for I am quite sure that no white man, (having never seen or heard of a horse before, and with the natural apprehension the first sight of such an animal would create,) would deliberately have walked up to what must have appeared to them most formidable brutes, and placing the troughs they carried against their breast, have allowed the horses to drink, with their noses almost touching them. They likewise offered us some roasted ducks, and some cake. When we walked over to their camp, they pointed to a large new hut, and told us we could sleep there, but I had noticed a little hillock on which there were four box-trees, about fifty yards from the native encampment, on which, foreseeing that we could go no farther, I had already determined to remain, and on my intimating this to the natives they appeared

highly delighted; we accordingly went to the trees, and unsaddling our animals turned them out to feed. When the natives saw us quietly seated they came over, and brought a quantity of sticks for us to make a fire, wood being extremely scarce.

The men of this tribe were, without exception, the finest of any I had seen on the Australian Continent. Their bodies were not disfigured by any scars, neither were their countenances by the loss of any teeth, nor were they circumcised. They were a well-made race, with a sufficiency of muscular development, and stood as erect as it was possible to do, without the unseemly protrusion of stomach, so common among the generality of natives. Of sixty-nine who I counted round me at one time, I do not think there was one under my own height, 5 feet $10\frac{3}{4}$ inches, but there were several upwards of 6 feet. The children were also very fine, and I thought healthier and better grown than most I had seen, but I observed here, as elsewhere amongst smaller tribes, that the female children were more numerous than the males, why such should be the case, it is difficult to say. Whilst, however, I am thus praising the personal appearance of the men, I am sorry to say I observed but little improvement in the fairer sex. They were the same half-starved unhappy looking creatures whose condition I have so often pitied elsewhere.

These were a merry people and seemed highly delighted at our visit, and if one or two of them

were a little forward, I laid it to the account of curiosity and a feeling of confidence in their own numbers. But a little thing checked them, nor did they venture to touch our persons, much less to put their hands into our pockets, as the natives appear to have done, in the case of another explorer. It is a liberty I never allowed any native to take, not only because I did not like it, but because I am sure it must have the effect of lowering the white man in the estimation of the savage, and diminishing those feelings of awe and inferiority, which are the European's best security against ill treatment. The natives told us, that there was no water to the eastward, and that if we went there we should all die. They explained that the creek commenced on the plains, by spreading out their fingers as the old man had done, to shew that many small channels made a large one, pointing to the creek, and they said the water was all gone to the place we had come from; meaning, to the lower part of it. On asking them by signs, if the creek continued beyond the plains, they shook their heads, and again put their extended hand on the ground, pointing to the plain. They could give us no account of the ranges to which I proposed going, any more than others we had asked. On inquiring, if there was any water to the north-west a long discussion took place, and it was ultimately decided that there was not. I could understand, that several of them mentioned the names of places where they supposed there might be water, but it was

evidently the general opinion that there was none. Neither did they appear to know of any large waters, on which the natives had canoes, in confirmation of the old man's actions. On this interesting and important point they were wholly ignorant.

The smallness of the water-hole, on which these people depended, was quite a matter of surprise to me, and I hardly liked to let the horses drink at it, in consequence. At sunset all the natives left us (as is their wont at that hour), and went to their own encampment; nor did one approach us afterwards, but they sat up to a late hour at their own camp, the women being employed beating the seed for cakes, between two stones, and the noise they made was exactly like the working of a loom factory. The whole encampment, with the long line of fires, looked exceedingly pretty, and the dusky figures of the natives standing by them, or moving from one hut to the other, had the effect of a fine scene in a play. At 11 all was still, and you would not have known that you were in such close contiguity to so large an assemblage of people.

When I laid down, I revolved in my own mind what course I should pursue in the morning. If the account of the natives was correct, it was clear that my further progress eastward, was at an end. My horses, indeed, were now reduced to such a state, that I foresaw my labours were drawing to a close. Mack, too, was so ill, that he could hardly sit his animal, and although I did not anticipate any-

thing serious in his case, anything tending to embarrass was now felt by us. Mr. Stuart and Morgan held up well, but I felt myself getting daily weaker and weaker. I found that I could not rise into my saddle with the same facility, and that I lost wind in going up a bank of only a few feet in height. I determined, however, on mature consideration, to examine the plain, and to satisfy myself before I should turn back, as to the fact of the creek commencing upon it. Accordingly, in the morning, we saddled and loaded our horses, but none of the natives came to us until we had mounted; when they approached to take leave, and to persuade us not to go in the direction we proposed, but to no purpose. The pool from which they drew their supply of water, was in the centre of a broad shallow grassy channel, that passed the point of the sand hill we had ascended, and ran up to the northward and westward; we were, therefore, obliged to cross this channel, and soon afterwards got on the plains. They were evidently subject to flood, and were exceedingly soft and blistered; the grass upon them grew in tufts, not close, so that in the distance, the plains appeared better grassed than they really were. At length, we got on a polygonum flat of great size, in the soil of which our horses absolutely sunk up to the shoulder at every step. I never rode over such a piece of ground in my life, but we managed to flounder through it, until at length we got on the somewhat firmer but still heavy plain.

It was very clear, however, that our horses would not go a day's journey over such ground. It looked exactly as I have described it—an immense concavity, with numerous small channels running down from every part, and making for the creek as a centre of union; nor, could we anywhere see a termination to it. Had the plain been of less extent, I might have doubted the information of the natives; but, looking at the boundless hollow around me, I did not feel any surprise that such a creek even as the one up which we had journeyed, should rise in it, and could easily picture to myself the rush of water there must be to the centre of the plain, when the ground has been saturated with moisture.

The day being far advanced, whilst we were yet pushing on, without any apparent termination to the heavy ground over which we were riding, I turned westward at 2 P.M., finding that the attainment of the object I had in view, in attempting to cross the plain, was a physical impossibility. We reached the water, at which the blind native visited us, a little after sunset, and were as glad as our poor animals could have been, when night closed in upon us, and our labours.

On the 5th, we passed the old man's camp, in going down the creek, instead of crossing the plains as before, and halted at the junction of a creek we had passed, that came from the north, and along the banks of which I proposed turning towards the ranges. On the morning of the 6th we kept the

general course of this tributary, which ran through an undulating country of rocks and sand. Its channel was exceedingly capacious, and its banks were high and perpendicular, but everything about it, was sand or gravel. Its bed was perfectly level, and its appearance at once destroyed the hope of finding water in it.

The ground over which we rode, was, as I have stated, a mixture of gravel and rocks, and our horses yielded under us at almost every step as they trod on the sharp pointed fragments. At eight miles we reached the outer line of hills, as they had appeared to us in the distance, and entered a pass between two of them, of about a quarter of a mile in width. At this confined point there were the remains and ravages of terrific floods. The waters had reached from one side of the pass to the other, and the dead trunks of trees and heaps of rubbish, were piled up against every bush.

There was not a blade of vegetation to be seen either on the low ground or on the ranges, which were from 3 to 400 feet in height, and were nothing more than vast accumulations of sand and rocks. At a mile, we arrived at the termination of the pass, and found ourselves at the entrance of a barren, sandy valley, with ranges in front of us, similar to those we had already passed. I thought it advisable, therefore, to ascend a hill to my left, somewhat higher than any near it, to ascertain, if possible, the character of the northern interior. The task

of clambering to the top of it however, was, in my then reduced state, greater than I expected, and I had to wait a few minutes before I could look about me after gaining the summit. I could see nothing, after all, to cheer me in the view that presented itself. To the northward was the valley in which the creek rises, bounded all round by barren, stony hills, like that on which I stood; and the summits of other similar hills shewed themselves above the nearer line. To the east the apparently interminable plains on which we had been, still met the horizon, nor was anything to be seen beyond them. Westward the outer line of hills continued backed by others, in the outlines of which we recognised the peaks and forms of the apparently lofty chain we first saw when we discovered the creek. Thus, then, it appeared, that I had been entirely deceived in the character of these hills, and that it had been the effect of refraction in those burning regions, which had given to these moderate hills their mountain-like appearance.

Satisfied that my horses had not the strength to cross such a country, and that in it I had not the slightest chance of procuring the necessary sustenance for them, I turned back to Cooper's Creek, and then deemed it prudent to travel quietly on towards the place at which we first struck it, and had subsequently left our surplus stores.

In riding amongst some rocky ground, we shot a new and beautiful little pigeon, with a long crest.

The habits of this bird were very singular, for it never perched on the trees, but on the highest and most exposed rocks, in what must have been an intense heat; its flight was short like that of a quail, and it ran in the same manner through the grass when feeding in the evening. We reached our destination on the evening of the 8th, and were astonished to see how much the waters had shrunk from their previous level. Such an instance of the rapid diminution of so large a pool, made me doubt whether I should find any water in Strzelecki's Creek to enable me to regain the Depôt.

As we descended from the flats to cross over to our old berth, we found it occupied by a party of natives, who were disposed to be rather troublesome, especially one old fellow, whose conduct annoyed me exceedingly. However, I very soon got rid of them; and after strolling for a short time within sight of us, they all went up the creek; but I could not help thinking, from the impertinent pertinacity of these fellows, that they had discovered my magazine, and taken all the things, more especially as they had been digging where our fire had been, so that, if I had buried the stores there as intended, they would have been taken.

As soon as the natives were out of sight, Mr. Stuart and I went to the rhagodia bush for our things. As we approached, the branches appeared just as we had left them; but on getting near, we saw a bag lying outside, and I therefore concluded

hat the natives had carried off everything. Still, hen we came up to the bush, nothing but the bag ppeared to have been touched, all the other things ere just as we left them, and, on examining the bag, othing was missing. Concluding, therefore, that he natives had really discovered my store, but had been too honest to rob us, I returned to the reek in better humour with them; but, a sudden hought occurring to Mr. Stuart, that as there was an il lamp in the bag, a native dog might have smelt nd dragged it out of its place, we returned to the ush, to see if there were any impressions of naked eet round about it, but with the exception of our wn, there were no tracks save those of a native dog. I was consequently obliged to give Mr. Stuart redit for his surmise, and felt somewhat mortified hat the favourable impression I had received as to he honesty of the natives had thus been destroyed. They had gone up the creek on seeing that I was lispleased, and we saw nothing more of them luring the afternoon; but on the following morning hey came to see us, and as they behaved well, I gave them a powder canister, a little box, and some ther trifles; for after all there was only one old ellow who had been unruly, and he now shewed s much impatience with his companions as he had one with us, and I therefore set his manner down o the score of petulance.

At 10 A.M. on the 9th we prepared to move over to he branch creek, as I really required rest and quiet,

and knew very well that as long as I remained where I was, we should be troubled by our sable friends, who, being sixteen in number, would require being well looked after. Before we finally left the neighbourhood, however, where our hopes had so often been raised and depressed, I gave the name of Cooper's Creek to the fine watercourse we had so anxiously traced, as a proof of my great respect for Mr. Cooper, the Judge of South Australia. I am not conversant in the language of praise, but thus much will I venture to say, that whether in his public or private capacity, Mr. Cooper was equally entitled to this record of my feelings towards him. I would gladly have laid this creek down as a river, but as it had no current I did not feel myself justified in so doing. Had it been nearer the located districts of South Australia, its discovery would have been a matter of some importance. As it is we know not what changes or speculations may lead the white man to its banks. Purposes of utility were amongst the first objects I had in view in my pursuit of geographical discovery; nor do I think that any country, however barren, can be explored without the attainment of some good end. Circumstances may yet arise to give a value to my recent labours, and my name may be remembered by after generations in Australia, as the first who tried to penetrate to its centre. If I failed in that great object, I have one consolation in the retrospect of my past services. My path amongst savage tribes has been a bloodless

one, not but that I have often been placed in situations of risk and danger, when I might have been justified in shedding blood, but I trust I have ever made allowances for human timidity, and respected the customs and prejudices of the rudest people. I hope, indeed, that in this my last expedition, I have not done discredit to the good opinion Sir C. Napier, an officer I knew not, was pleased to entertain of me. Most assuredly in my intercourse with the savage, I have endeavoured to elevate the character of the white man. Justice and humanity have been my guides, but while I have the consolation to know that no European will follow my track into the Desert without experiencing kindness from its tenants, I have to regret that the progress of civilized man into an uncivilized region, is almost invariably attended with misfortune to its original inhabitants.

I struck Cooper's Creek in lat. 27° 44′, and in long. 140° 22′, and traced it upwards to lat. 27° 56′, and long. 142° 00′. There can be no doubt but that it would support a number of cattle upon its banks, but its agricultural capabilities appear to me doubtful, for the region in which it lies is subject evidently to variations of temperature and seasons that must, I should say, be inimical to cereal productions; nevertheless I should suppose its soil would yield sufficient to support any population that might settle on it.

CHAPTER III.

CONTINUED DROUGHT—TERRIFIC EFFECT OF HOT WIND—THERMOMETER BURSTS—DEATH OF POOR BAWLEY—FIND THE STOCKADE DESERTED—LEAVE FORT GREY FOR THE DEPÔT—DIFFERENCE OF SEASONS—MIGRATION OF BIRDS—HOT WINDS — EMBARRASSING POSITION — MR. BROWNE STARTS FOR FLOOD'S CREEK—THREE BULLOCKS SHOT—COMMENCEMENT OF THE RETREAT—ARRIVAL AT FLOOD'S CREEK—STATE OF VEGETATION—EFFECTS OF SCURVY—ARRIVE AT ROCKY GLEN — COMPARISON OF NATIVE TRIBES—HALT AT CARNAPAGA — ARRIVAL AT CAWNDILLA—REMOVAL TO THE DARLING—LEAVE THE DARLING—STATE OF THE RIVER—OPPRESSIVE HEAT—VISITED BY NADBUCK—ARRIVAL AT MOORUNDI.

By half past eleven of the 9th November we had again got quietly settled, and I then found leisure to make such arrangements as might suggest themselves for our further retreat. To insure the safety of the animals as much as possible, I determined to leave all my spare provisions and weightier stores behind, and during the afternoon we were engaged making the loads as compact and as light as we could.

It was not, however, the fear of the water in Strzelecki's Creek having dried up, that was at this moment the only cause of anxiety to me, for I thought it more than probable that Mr. Browne had been obliged to retreat from Fort Grey, in which case I should still have a journey before me to the old

Depôt of 170 miles or more, under privations, to the horses at least, of no ordinary character; and I had great doubts as to the practicability of our final retreat upon the Darling. The drought had now continued so long, and the heat been so severe, that I apprehended we might be obliged to remain another summer in these fearful solitudes. The weather was terrifically hot, and appeared to have set in unusually early.

Under such circumstances, and with so many causes to render my mind anxious, the reader will believe I did not sleep much. The men were as restless as myself, so that we commenced our journey before the sun had risen on the morning of the 10th of November, to give the horses time to take their journey leisurely. Slowly we retraced our steps, nor did I stop for a moment until we had got to within five miles of our destination, at which distance we saw a single native running after us, and taking it into my head that he might be a messenger from Mr. Browne, I pulled up to wait for him, but curiosity alone had induced him to come forward. When he got to within a hundred yards, he stopped and approached no nearer. This little delay made it after sunset before we reached the upper pool (not the one Mr. Browne and I had discovered), and were relieved from present anxiety by finding a thick puddle still remaining in it, so that I halted for the night. Slommy, Bawley, and the colt had hard work to keep up with the other horses, and it

mercury had risen to the top of the instrument, and that its further expansion had burst the bulb, a circumstance that I believe no traveller has ever before had to record. I cannot find language to convey to the reader's mind an idea of the intense and oppressive nature of the heat that prevailed. We had reached our destination however before the worst of the hot wind set in; but all the water that now remained in the once broad and capacious pool to which I have had such frequent occasion to call the attention of the reader, was a shining patch of mud nearly in the centre. We were obliged to dig a trench for the water to filter into during the night, and by this means obtained a scanty supply for our horses and ourselves.

About sunset the wind shifted to the west, a cloud passed over us, and we had heavy thunder; but a few drops of rain only fell. They partially cooled the temperature, and the night was less oppressive than the day had been. We had now a journey of 86 miles before us: to its results I looked with great anxiety and doubt. I took every precaution to fortify the horses, and again reduced the loads, keeping barely a supply of flour for a day or two. Before dawn we were up, and drained the last drop of water, if so it could be called, out of the little trench we had made, and reserving a gallon for the first horse that should fall, divided the residue among them. Just as the morning was breaking, we left the creek, and travelled for 36 miles. I then

halted until the moon should rise, and was glad to see that the horses stood it well. At seven we resumed the journey, and got on tolerably well until midnight, when poor Bawley, my favourite horse, fell; but we got him up again, and abandoning his saddle, proceeded onwards. At a mile, however, he again fell, when I stopped, and the water revived him. I now hoped he would struggle on, but in about an hour he again fell. I was exceedingly fond of this poor animal, and intended to have purchased him at the sale of the remnants of the expedition, as a present to my wife. We sat down and lit a fire by him, but he seemed fairly worn out. I then determined to ride on to the Depôt, and if Mr. Browne should still be there, to send a dray with water to the relief of the men. I told them, therefore, to come slowly on, and with Mr. Stuart pushed for the camp. We reached the plain just as the sun was descending, without having dismounted from our horses for more than fifteen hours, and as we rode down the embankment into it, looked around for the cattle, but none were to be seen. We looked towards the little sandy mound on which the tents had stood, but no white object there met our eye; we rode slowly up to the stockade, and found it silent and deserted. I was quite sure that Mr. Browne had had urgent reasons for retiring. I had indeed anticipated the measure: I hardly hoped to find him at the Fort, and had given him instructions on the subject of his removal, yet a sickening

feeling came over me when I saw that he was really gone; not on my own account, for, with the bitter feelings of disappointment with which I was returning home, I could calmly have laid my head on that desert, never to raise it again. The feeling was natural, and had no mixture whatever of reproach towards my excellent companion.

We dismounted and led our horses down to water before I went to the tree under which I had directed Mr. Browne to deposit a letter for me. A good deal of water still remained in the channel, but nevertheless a large pit had been dug in it as I had desired. I did not drink, nor did Mr. Stuart, the surface of the water was quite green, and the water itself was of a red colour, but I believe we were both thinking of any thing but ourselves at that moment. As soon as we had unsaddled the horses, we went to the tree and dug up the bottle into which, as agreed upon, Mr. Browne had put a letter; informing me that he had been most reluctantly obliged to retreat; the water at the Depôt having turned putrid, and seriously disagreed with the men; he said that he should fall back on the old Depôt along the same line on which we had advanced, and expressed his fears that the water in Strzelecki's Creek would have dried, on the permanence of which he knew our safety depended. Under present circumstances the fate of poor Bawley, if not of more of our horses, was sealed. Mr. Stuart and I sat down by the stockade, and as night closed in lit a fire to guide Morgan and Mack on their

approach to the plain. They came up about 2 P.M. having left Bawley on a little stony plain, and the Colt on the sand ridges nearer to us, and in the confusion and darkness had left all the provisions behind; it therefore became necessary to send for some, as we had not had anything for many hours. The horses Morgan and Mack had ridden were too knocked up for further work, but I sent the latter on my own horse with a leather bottle that had been left behind by the party, full of water for poor Bawley, if he should still find him alive. Mack returned late in the afternoon, having passed the Colt on his way to the Depôt, towards which he dragged himself with difficulty, but Bawley was beyond recovery; he gave the poor animal the water, however, for he was a humane man, and then left him to die.

We had remained during the day under a scorching heat, but could hardly venture to drink the water of the creek without first purifying it by boiling, and as we had no vessel until Mack should come up we had to wait patiently for his arrival at 7 P.M. About 9 we had a damper baked, and broke our fast for the first time for more than two days.

While sitting under a tree in the forenoon Mr. Stuart had observed a crow pitch in the little garden we had made, but which never benefited us, since the sun burnt up every plant the moment it appeared above the ground. This bird scratched for a short time in one of the soft beds, and then flew away with something in his bill. On going to the spot

Mr. Stuart scraped up a piece of bacon and some suet, which the dogs of course had buried. These choice morsels were washed and cooked, and Mr. Stuart brought me a small piece of bacon, certainly not larger than a dollar, which he assured me had been cut out of the centre and was perfectly clean. I had not tasted the bacon since February, nor did I now feel any desire to do so, but I ate it because I thought I really wanted it in the weak state in which I was.

Perhaps a physician would laugh at me for ascribing the pains I felt the next morning to so trifling a cause, but I was attacked with pains at the bottom of my heels and in my back. Although lying down I felt as if I was standing balanced on stones; these pains increased during the day, insomuch that I anticipated some more violent attack, and determined on getting to the old Depôt as soon as possible; but as the horses had not had sufficient rest, I put off my journey to 5 P.M. on the following day, when I left Fort Grey with Mr. Stuart, directing Mack and Morgan to follow at the same hour on the following day, and promising that I would send a dray with water to meet them. I rode all that night until 3 P.M. of the 17th, when we reached the tents, which Mr. Browne had pitched about two miles below the spot we had formerly occupied. If I except two or three occasions on which I was obliged to dismount to rest my back for a few minutes we rode without stopping, and might truly be said to have been twenty hours on horseback.

Sincere I believe was the joy of Mr. Browne, and indeed of all hands, at seeing us return, for they had taken it for granted that our retreat would have been cut off. I too was gratified to find that Mr. Brown was better, and to learn that everything had gone on well. Davenport had recently been taken ill, but the other men had recovered on their removal from the cause of their malady.

When I dismounted I had nearly fallen forward. Thinking that one of the kangaroo dogs in his greeting had pushed me between the legs, I turned round to give him a slap, but no dog was there, and I soon found out that what I had felt was nothing more than strong muscular action brought on by hard riding.

As I had promised I sent Jones with a dray load of water to meet Morgan and Mack, who came up on the 19th with the rest of the horses.

Mr. Browne informed me that the natives had frequently visited the camp during my absence. He had given them to understand that we were going over the hills again, on which they told him that if he did not make haste all the water would be gone. It now behoved us therefore to effect our retreat upon the Darling with all expedition. Our situation was very critical, for the effects of the drought were more visible now than before the July rain,—no more indeed had since fallen, and the water in the Depôt creek was so much reduced that we had good reason to fear that none remained anywhere else. On the 18th I sent Flood to a small creek,

between us and the Pine forest, but he returned on the following day with information that it had long been dry. Thus then were my fears verified, and our retreat to the Darling apparently cut off. About this time too the very elements, against which we had so long been contending, seemed to unite their energies to render our stay in that dreadful region still more intolerable. The heat was greater than that of the previous summer; the thermometer ranging between 110° and 123° every day; the wind blowing heavily from N.E. to E.S.E. filled the air with impalpable red dust, giving the sun the most foreboding and lurid appearance as we looked upon him. The ground was so heated that our matches falling on it, ignited; and, having occasion to make a night signal, I found the whole of our rockets had been rendered useless, as on being lit they exploded at once without rising from the ground.

I had occasion—in the first volume of this work—to remark that I should at a future period have to make some observations on the state of the vegetation at this particular place; there being about a month or six weeks difference between the periods of the year when we first arrived at, and subsequently returned to it. When we first arrived on the 27th of January, 1845, the cereal grasses had ripened their seed, and the larger shrubs were fast maturing their fruit; the trees were full of birds, and the plains were covered with pigeons—having

nests under every bush. At the close of November of the same year—that is to say six weeks earlier—not an herb had sprung from the ground, not a bud had swelled, and, where the season before the feathered tribes had swarmed in hundreds on the creek, scarcely a bird was now to be seen. Our cattle wandered about in search for food, and the silence of the grave reigned around us day and night.

Was it instinct that warned the feathered races to shun a region in which the ordinary course of nature had been arrested, and over which the wrath of the Omnipotent appeared to hang? Or was it that a more genial season in the country to which they migrate, rendered their desertion of it at the usual period unnecessary? Most sincerely do I hope that the latter was the case, and that a successful destiny will await the bold and ardent traveller* who is now crossing those regions.

On the 20th I sent Flood down the creek to ascertain if water remained in it or the farther holes mentioned by the natives, thinking that in such a case we might work our way to the eastward; but on the 23rd he returned without having seen a drop of water from the moment he left us. The deep and narrow channel I had so frequently visited, and which I had hoped might still contain water, had long been dry, and thus was our retreat cut off in that quarter also. There was

*Dr. Leichhardt had started to cross the Continent some time before.

apparently no hope for us—its last spark had been extinguished by this last disappointment; but the idea of a detention in that horrid desert was worse than death itself.

On the morning of the 22nd the sky was cloudy and the sun obscure, and there was every appearance of rain. The wind was somewhat to the south of west, the clouds came up from the north, and at ten a few drops fell; but before noon the sky was clear, and a strong and hot wind was blowing from the west: the dust was flying in clouds around us, and the flies were insupportable.

At this time Mr. Stuart was taken ill with pains similar to my own, and Davenport had an attack of dysentery.

On the 23rd it blew a fierce gale and a hot wind from west by north, which rendered us still more uncomfortable: nothing indeed could be done without risk in such a temperature, and such a climate. The fearful position in which we were placed, caused me great uneasiness; the men began to sicken, and I felt assured that if we remained much longer, the most serious consequences might be apprehended.

On the 24th, Mr. Browne went with Flood to examine a stony creek about 16 miles to the south, and on our way homewards. We had little hope that he would find any water in it, but if he did, a plan had suggested itself, by which we trusted to effect our escape. It being impossible to stand the outer heat, the men were obliged to take whatever

things wanted repair, to our underground room, and I was happy to learn from Mr. Stuart, who I sent up to superintend them, that the natives had not in the least disturbed Mr. Poole's grave.

On the 25th Mr. Browne returned, and returned unsuccessful: he could find no water any where, and told me it was fearful to ride down the creeks and to witness their present state.

We were now aware that there could be no water nearer to us than 118 miles, *i. e.* at Flood's Creek, and even there it was doubtful if water any longer remained. To have moved the party on the chance of finding it would have been madness: the weather was so foreboding, the heat so excessive, and the horses so weak, that I did not dare to trust them on such a journey, or to risk the life of any man in such an undertaking. I was myself laid up, a helpless being, for I had gradually sunk under the attack of scurvy which had so long hung upon me. The day after I arrived in camp I was unable to walk: in a day or two more, my muscles became rigid, my limbs contracted, and I was unable to stir; gradually also my skin blackened, the least movement put me to torture, and I was reduced to a state of perfect prostration. Thus stricken down, when my example and energies were so much required for the welfare and safety of others, I found the value of Mr. Browne's services and counsel. He had already volunteered to go to Flood's Creek to ascertain if water was still to be procured in it, but

I had not felt justified in availing myself of his offer. My mind, however, dwelling on the critical posture of our affairs, and knowing and feeling as I did the value of time, and that the burning sun would lick up any shallow pool that might be left exposed, and that three or four days might determine our captivity or our release, I sent for Mr. Browne, to consult with him as to the best course to be adopted in the trying situation in which we were placed, and a plan at length occurred by which I hoped he might venture on the journey to Flood's Creek without risk. This plan was to shoot one of the bullocks, and to fill his hide with water. We determined on sending this in a dray, a day in advance, to enable the bullock driver to get as far as possible on the road, we then arranged that Mr. Browne should take the light cart, with 36 gallons of water, and one horse only; that on reaching the dray, he should give his horse as much water as he would drink from the skin, leaving that in the cart untouched until he should arrive at the termination of his second day's journey, when I proposed he should give his horse half the water, and leaving the rest until the period of his return, ride the remainder of the distance he had to go. I saw little risk in this plan, and we accordingly acted upon it immediately: the hide was prepared, and answered well, since it easily contained 150 gallons of water. Jones proceeded on the morning of the 27th, and on the 28th Mr. Browne

left me on this anxious and to us important journey, accompanied by Flood. We calculated on his return on the eighth day, and the reader will judge how anxiously those days passed. On the day Mr. Browne left me, Jones returned, after having deposited the skin at the distance of 32 miles.

On the eighth day from his departure, every eye but my own was turned to the point at which they had seen him disappear. About 3 P.M., one of the men came to inform me that Mr. Browne was crossing the creek, the camp being on its left bank, and in a few minutes afterwards he entered my tent. "Well, Browne," said I, "what news? Is it to be good or bad?" "There is still water in the creek," said he, "but that is all I can say. What there is is as black as ink, and we must make haste, for in a week it will be gone." Here then the door was still open,—a way to escape still practicable, and thankful we both felt to that Power which had directed our steps back again ere it was finally closed upon us; but even now we had no time to lose: to have taken the cattle without any prospect of relief until they should arrive at Flood's Creek, would have been to sacrifice almost the whole of them, and to reduce the expedition to a condition such as I did not desire. The necessary steps to be taken, in the event of Mr. Browne's bringing back good tidings, had engaged my attention during his absence, and with his assistance, that on which I had determined was immediately put into execution. I directed three

more bullocks to be shot, and their skins prepared; and calculated that by abandoning the boat and our heavier stores, we might carry a supply of water on the drays, sufficient for the use of the remaining animals on the way. Three bullocks were accordingly killed, and the skins stripped over them from the neck downwards, so that the opening might be as small as possible.

The boat was launched upon the creek, which I had vainly hoped would have ploughed the waters of a central sea. We abandoned our bacon and heavier stores, the drays were put into order, their wheels wedged up, their axles greased, and on the 6th of December, at 5 P.M., we commenced our retreat, having a distance of 270 miles to travel to the Darling, and under circumstances which made it extremely uncertain how we should terminate the journey, since we did not expect to find any water between Flood's Creek and the Rocky Glen, or between the Rocky Glen and the Darling itself. The three or four days preceding our departure had been quite overpowering, neither did there seem to be a likelihood of any abatement of the heat when we left the Depôt. At 5 A.M. of the morning of the 7th, having travelled all night, I halted to rest the men and animals. We had then the mortification to find one of the skins was defective, and let out the water at an hundred different pores. I directed the water that remained in the skin to be given to the stock rather than that it

should be lost; but both horses and bullocks refused it. During the first part of the night it was very oppressive; but about an hour after midnight the wind shifted to the south, and it became cooler. We resumed our journey at 7, and did not again halt until half past 12 P.M. of the 8th, having then gained the Muddy Lagoon, at which the reader will recollect we stopped for a short time after breaking through the Pine forest about the same period the year before; but as there was nothing for the animals to eat, I took them across the creek and put them upon an acre or two of green feed along its banks. I observed that the further we advanced southwards, the more forward did vegetation appear; Mr. Browne made the same remark to me on his return from Flood's Creek, where he found the grasses ripe, whereas at the Depôt Creek the ground was still perfectly bare.

About 3 A.M. we had a good deal of thunder and lightning, and at 7 the wind shifted a point or two to the eastward of south. Notwithstanding the quarter from which the wind blew, heavy clouds came up from the west, and about 11 we had a misty rain with heavy thunder and lightning. The rain was too slight to leave any puddles, but it moistened the dry grass, which the animals greedily devoured.

On leaving the creek we kept for about eight miles on our old track, but at that distance turned due south for two hills, the position of which Mr. Browne

had ascertained on his recent journey, and by taking this judicious course avoided the Pine ridges altogether. We were, however, obliged to halt, as the moon set, in the midst of an open brush, but started again at day-break on the morning of the 9th.

Before we left the creek, near the Muddy Lagoon, all the horses and more than one half of the bullocks had drank plentifully of the water in the hides, in consequence of which they got on tolerably well. On resuming our journey we soon cleared the remainder of the scrub, and got into a more open sandy country, but the travelling on it was good; and at 20 minutes to two we halted within a mile of the hills towards which we had been moving, then about 26 miles from Flood's Creek. Being in great pain I left Mr. Browne at half-past three P.M., and reached our destination at midnight. Two hours afterwards Mr. Browne came up with the rest of the party. So we completed our first stage without the loss of a single animal; but had it not been for the slight rain that fell on the morning of the 8th, and the subsequent change of temperature, none of our bullocks could have survived the journey thus far.

As it had occupied three nights and two days, it became necessary to give both men and animals a day of rest. I could not however be so indulgent to Mr. Browne or to Flood. The next place at which we hoped to find water, was at the Rocky Gully at the foot of the ranges, distant 49 miles, if

water failed us there, neither had Mr. Browne or Flood any reasonable expectation that we should procure any until we gained the Darling itself, then distant 150 miles. Mr. Browne was himself suffering severely from attacks of scurvy, but he continued with unwearied zeal to supply my place. On the 11th, at one P.M, he left me for the hills, but before he started we arranged that he should return and meet me half way whether he succeeded in finding water or not, and in order to ensure this I proposed leaving the Creek on the 13th.

As Mr. Browne had informed me, we found the vegetation much more forward at this place than we had hitherto seen it, still many of the grasses were invisible, not having yet sprung up, but there was a solitary stool of wheat that had been accidentally dropped by us and had taken root, which had 13 fine heads upon it quite ripe. These Mr. Browne gathered, and, agreeably to my wishes, scattered the seed about in places where he thought it would be most likely to grow. There was also a single stool of oats but it was not so fine as the wheat.

On the 12th, at 2 P.M., Flood suddenly returned, bringing information that Mr. Browne had unexpectedly found water in the lower part of a little rocky creek in our way, distant 18 miles, and that he was gone on to the Rocky Gully. On receiving this intelligence I ordered the bullocks to be yoked up, and we started for the creek at which we had left the cart on our outward journey, at 7 P.M. It was

blowing heavily at the time from the S.W. and large clouds passed over us, but the sky cleared as the wind fell at midnight. We reached our destination at 3 A.M. of the 13th. Here I remained until half-past six when we again started and gained the Horse-cart Creek at half-past twelve. Here, as at Flood's Creek, we found a large plant of mustard and some barley in ear and ripe, where few of the native grasses had more than made their appearance out of the ground.

Stopping to rest the animals for half an hour, I went myself to the little branch creek, on which the reader will recollect our cattle depended when we were last in this neighbourhood, and where I had arranged to meet Mr. Browne, who arrived there about half an hour before me. He had again been successful in finding a large supply of water in the Rocky Gully, and thought that rain must have fallen on the hills.

At 4 the teams again started, but I was too unwell to accompany them immediately. I had in truth lost the use of my limbs, and from the time of our leaving the Depôt had been lifted in and out of the cart; constant jolting therefore had greatly fatigued me, and I found it necessary to stop here for a short time after the departure of the drays. At half-past six however, we followed and overtook the party about five miles from the gully, where we halted at 3 A M. of the 14th.

Mr. Browne had found a large party of natives at the water, who had been very kind to him, and many

of them still remained when we came up. He had observed some of them eating a small acid berry, and had procured a quantity for me in the hope that they would do me good, and while we remained at this place he good-naturedly went into the hills and gathered me a large tureen full, and to the benefit I derived from these berries I attribute my more speedy recovery from the malady under which I was suffering. We were now 116 miles from the Darling, and although there was no longer any doubt of our eventually reaching it, the condition in which we should do so, depended on our finding water in the Coonbaralba pass, from which we were distant 49 miles. In the evening I sent Flood on ahead to look for water, with orders to return if he succeeded in his search. In consequence of the kindness of the natives to Mr. Browne I made them some presents and gave them a sheep, which they appeared to relish greatly. They were good-looking blacks and in good condition, speaking the language of the Darling natives.

It was late on the 15th before we ascended the ranges; but, as I had only a limited distance to go it was not of much consequence, more especially as I purposed halting at the little spring, in the upper part of the Rocky Gully, at which Morgan and I stopped on a former occasion, when Mr. Browne and Flood were looking for a place by which we could descend from the hills to the plains of the desert interior. Mr. Browne took the short cut up

the gully with the sheep; but when I reached the glen he had not arrived, and as he did not make his appearance for some time I became anxious, and sent after him, but he had only been delayed by the difficulty of the road, along which he described the scenery as very bold and picturesque.

We had not up to this time experienced the same degree of heat that prevailed at the Depôt. The temperature since the thunder on the 8th had been comparatively mild, and on ascending the hills we felt a sensible difference. I attributed it, however, to our elevated position, for we had on our way up the country experienced the nature of the climate of the Darling. We could not decidedly ascertain the fact from the natives, but as they were at this place in considerable numbers, both Mr. Browne and myself concluded that the river had not been flooded this year; neither had the season been the same as that of the former year, for it will be remembered that at the period the party crossed the ranges, a great deal of rain had fallen, in so much that the wheels of the drays sunk deep into the ground; but now they hardly left an impression, as they moved over it; and although more rain might have fallen on the hills than in the depressed region beyond them, it was clear that none had fallen for a considerable length of time in this neighbourhood.

Mr. Browne saw five or six rock Wallabies as he was coming up the glen, and said they were

beautiful little animals. He remarked that they bounded up the bold cliffs near him with astonishing strength and activity; in some places there were basaltic columns, resting on granite, 200 and 300 feet high.

Flood returned at 4 A.M. having found water, though not of the best description, in the pass. His horse had, however, drank plentifully of it, so that I determined on pushing from that point to Cawndilla, hoping by good management to secure the cattle reaching it in safety.

Considering the distance we had to go we started late, but the bullocks had strayed down the creek, and it took some time to drive them over such rugged ground.

I preceded the party in the cart, leaving Mr. Browne in charge of the drays, and crossing the ranges descended into the pass two hours after sunset. We passed a brackish pool of water, and stopped at a small well, at which there were two native women. The party came up about two hours after midnight, the men and animals being greatly fatigued, so that it was absolutely necessary to remain stationary for a day. Our retreat had been a most harassing one, but it admitted of no hesitation. Though we had thus far, under the blessing of Providence, brought every thing in safety, and had now only one more effort to make, Cawndilla was still distant 69 miles, between

which and our position there was not a drop of water.

One of the women we found here, came and slept at our fire, and managed to roll herself up in Mr. Browne's blanket, who, waking from cold, found that his *fair* companion had uncovered him, and appropriated the blanket to her own use. The natives suffer exceedingly from cold, and are perfectly paralysed by it, for they are not provided with any covering, neither are their huts of a solidity or construction such as to protect them from its effects. About noon a large tribe joined us from the S.W. and we had a fine opportunity to form a judgment of them, when contrasted with the natives of the Desert from which we had come. Robust, active, and full of life, these hill natives were every way superior to the miserable half-starved beings we had left behind, if I except the natives of Cooper's Creek. During the day they kept falling in upon us, and in the afternoon mustered more than one hundred strong, in men, women, and children. As they were very quiet and unobtrusive I gave them a couple of sheep, with which they were highly delighted, and in return, they overwhelmed our camp at night with their women.

I mentioned in a former part of this work, that Mr. Browne and I had succeeded in capturing a Dipus, when journeying to the N.W. We had subsequently taken another, and had kept them

both for some time, but one died, and the other springing out of its box was killed by the dogs. From the habits of this animal I did not expect to succeed in taking it home, but I had every hope that some Jerboas, of which we had five, would outlive the journey, for they thrived well on the food we gave them. I was, however, quite provoked at this place to find that two of them had died from the carelessness of the men throwing the tarpauline over the box, and so smothering them. The survivors were all but dead when looked at, and I feared we should lose them also.

As the morning of the 19th dawned, and distant objects became visible, the plains of the Darling gradually spread out before us. We commenced our journey to Cawndilla at half-past 7, and travelled down the creek until 2 P.M., when we halted for two hours during the heat of the day at Carnapaga. At 4 we resumed our journey, and again stopped for an hour on the little sand hill at the lower part of the creek, to enable the men to take some refreshment. At quarter-past 8 we turned from the creek and travelled all night by the light of a lamp, and at daylight were 18 miles from Cawndilla. We had kept upon our former tracks, on which the cattle had moved rapidly along, but they now began to flag. Mr. Browne was in front of the party with Mr. Stuart, but he suddenly returned, and coming up to my cart gave me a

letter he had found nailed up to a tree by Mr. Piesse. This letter was to inform me of his arrival on the banks of the Williorara on the 6th of the month, of his having been twice on the road in the hope of seeing us, and sent natives to procure intelligence of us, who returned in so exhausted a state, that he had given up all expectation of our being able to cross the hills. He stated that we should find a barrel of water a little further on, together with a letter from head quarters, but had retained all other letters until he should see me; nevertheless, he had the gratification to tell me that he had seen Mrs. Sturt the day before he left Adelaide, and that she was well. About a mile further on, we found the barrel of water, and relieved our suffering horses, and thus benefited by the prudent exertions of Mr. Piesse. Nothing, indeed, appeared to have escaped the anxious solicitude of that zealous officer to relieve our wants.

I reached Cawndilla at 9 A.M. and stopped on the banks of the Williorara at the dregs of a water-hole, about six inches deep, it being all that remained in the creek, but I was too much fatigued to push on to the Darling, a further distance of seven miles, where Mr. Piesse then was. The drays came up a little after noon; the cattle almost frantic from the want of water. It was with difficulty the men unyoked them, and the moment they were loose they plunged headlong into the creek and drank greedily of the putrid water that remained.

Amongst the letters I now received was one from the Colonial Secretary, informing me, that supplies had been forwarded to the point I had specified, according to the request contained in my letter of July; that my further suggestions had been acted upon, and that the Governor had availed himself of Mr. Piesse's services again, to send him in charge of the party: thus satisfied that he was on the Darling, I sent Mr. Browne and Mr. Stuart in advance, to apprise him of our approach.

On their arrival at his camp Mr. Piesse lost no time in repairing to me, and I shall not readily forget the unaffected joy he evinced at seeing me again. He had maintained a friendly intercourse with the natives, and had acquitted himself in a manner, as creditable to himself, as it had been beneficial to me.

Mr. Piesse was the bearer of numerous letters from my family and friends, and I was in some measure repaid for the past, by the good intelligence they conveyed: that my wife and children were well, and the colony was in the most flourishing condition,—since, during my absence, that stupendous mine had been discovered, which has yielded such profit to the owners—and the pastoral pursuits of the colonists were in an equally flourishing condition. Mr. Browne, too, received equally glad tidings from his brother, who informed him of his intention to meet the party on its way homewards.

On the 21st I moved over to the Darling; and

found a number of natives at the camp, and amongst them the old Boocolo of Williorara, who was highly delighted at our return.

Mr. Piesse had constructed a large and comfortable hut of boughs—which was much cooler than canvass. In this we made ourselves comfortable, and I hoped that the numerous and more generous supplies of eatables and drinkables than those to which we had been accustomed would conduce to our early restoration to health. I could not but fancy that the berries Mr. Browne had procured for me, and of which I had taken many, were beginning to work beneficially—although I was still unable to move. As I proposed remaining stationary until after Christmas Day, I deemed it advisable to despatch messengers with letters for the Governor, advising him of my safety, and to relieve the anxiety of my family and friends. Mr. Browne accordingly made an agreement with two natives, to take the letter-bag to the Ana-branch of the Darling, and send it on to Lake Victoria by other natives, who were to be rewarded for their trouble. For this service our messengers were to receive two blankets and two tomahawks, and the bag being closed they started off with it. I had proposed to Mr. Browne to be himself the bearer of it, but he would not leave me, even now. In order, therefore, to encourage the messengers, I gave them in advance the tomahawks they were to have received on their return. Our tent was generally full

of natives; some of them very fine young men, especially the two sons of the Boocolo. Topar made his appearance two or three days after our arrival, but Toonda was absent on the Murray: the former, however, having been detected in attempting a theft, I had him turned out of the tent and banished the camp. The old Boocolo came daily to see us, and as invariably laid down on the lower part of my mattrass.

On the 23rd I sent Mr. Stuart to verify his former bearings on Scrope's Range, and Mr. Browne kindly superintended the chaining of the distance between a tree I had marked on the banks of the Darling and Sir Thomas Mitchell's last camp. This tree was about a quarter of a mile below the junction of the Williorara, and had cut on it, [G. A. E., Dec. 24, 1843,] the distance between the two points was three miles and 20 chains.

The 25th being Christmas Day, I issued a double allowance to the men, and ordered that preparations should be made for pushing down the river on the following morning. About 2 P.M. we were surprised at the return of our two messengers, who insisted that they had taken the letter-bag to the point agreed upon, although it was an evident impossibility that they could have done so. I therefore evinced my displeasure and refused to give them the blankets —for which, nevertheless, they greatly importuned me. Mr. Browne, however, explained to the Boocolo why I refused, and charged the natives with having secreted it somewhere or other. On this there was

a long consultation with the natives, which terminated in the Boocolo's two sons separating from the others, and talking together for a long time in a corner of my hut; they then came forward and said, that my decision was perfectly just, for that the men had not been to the place agreed upon, but had left the bag of letters with a tribe on the Darling, and therefore, that they had been fully rewarded by the present of the tomahawks. This decided opinion settled the dispute at once, and the parties quietly acquiesced.

I had, as stated, been obliged to turn Topar out of my tent, and expel him the camp for theft, but at the same time Mr. Browne explained to the natives why I did so, and told them that I should in like manner expel any other who so transgressed, and they appeared fully to concur in the justice of my conduct. There is no doubt indeed but that they punish each other for similar offences, although perhaps the moral turpitude of the action is not understood by them.

The Darling at this time had ceased to flow, and formed a chain of ponds. The Williorara was quite dry from one end to the other, as were the lagoons and creeks in the neighbourhood. The natives having cleared the river of the fish that had been brought down by the floods, now subsisted for the most part on herbs and roots of various kinds, and on the caterpillar of the gum-tree moth, which they procured out of the ground with their switches, having a hook at the end. I do not think they could

procure animal food in the then state of the country, there being no ducks or kangaroos in the neighbourhood, in any great quantity at all events.

I thus early began to feel the benefit of a change of diet in the diminished rigidity of my limbs, and therefore entertained great hopes that I should yet be able to ride into Adelaide. The men too generally began to recover from their fatigues, but both Mr. Browne and Mr. Stuart continued to complain of shooting pains in their limbs. The party and the animals however being sufficiently recruited to enable us to resume our progress homewards, we broke up our camp at the junction of the Williorara on the 26th of the month as I had proposed, under more favourable circumstances than we could have expected, the weather being beautifully fine and the temperature pleasant. When I was carried out of my tent to the cart, I was surprised to see the verdure of that very ground against the barrenness of which I had had to declaim the preceding year; I mean the flats of the Williorara, now covered with grass, and looking the very reverse of what they had done before; so hazardous is it to give an opinion of such a country from a partial glimpse of it. The incipient vegetation must have been brought forth by flood or heavy rains.

We passed two tribes of natives, with whom we staid for a short time as the old Boocolo was with us. Amongst these natives we did not notice the same disproportion in the sexes as in the interior,

but not only amongst these tribes but with those of Williorara and Cawndilla, we observed that many had lost an eye by inflammation from the attacks of flies. I was really surprised that any of them could see, for most assuredly it is impossible to conceive anything more tormenting than those brutes are in every part of the interior.

On the 27th we passed two of our old encampments, and halted after a journey of 16 miles in the close vicinity of a tribe of natives, about fifty in number, the majority of whom were boys as mischievous as monkeys, and as great thieves too, but we reduced them to some kind of order by a little patience. The Darling had less water than in the previous year before the flood, but its flats were covered with grass, of which hundreds of tons might have been cut, so that our cattle speedily began to improve in condition.

About this time the weather was exceedingly oppressive, and heavy thunder-clouds hung about, but no rain fell.

Our journey on the 28th was comparatively short. We passed the location of another tribe during the day, and recovered our letter-bag, which had been left by our messengers with a native belonging to it. Here the old Boocolo left us and returned to Williorara.

The last days of 1845 and the few first of 1846 were exceedingly oppressive, and the heat was almost as great as in the interior itself.

On the 5th of January we crossed over from the Darling to its ancient channel, and on the 6th Mr. Browne left for Adelaide. On the 8th I reached Lake Victoria, where I learnt that our old friend Nadbuck had been speared by a native, whose jealousy he had excited, but that his wound was not mortal. He was somewhere on the Rufus, which I did not approach, but made a signal fire in the hope that he would have seen it, and, had they not been spoiled, I should have thrown up a rocket at night. However Nadbuck heard of our return, and made a successful effort to get to us, and tears chased each other down the old man's cheeks when he saw us again. Assuredly these poor people of the desert have the most kindly feelings; for not only was his reception of us such as I have described, but the natives one and all exhibited the utmost joy at our safety, and cheered us on every part of the river.

It blew very heavily on the night of the 10th, but moderated towards the morning, and the day turned out cooler than usual. The lagoons of the Murray were full of fish and wild fowl, and my distribution of all the hooks and lines I had brought back enabled my sable friends to capture an abundance of the former without going into the water, and they very soon appreciated the value of such instruments.

On the 13th I left Mr. Piesse in charge of the party, and pushed on to Moorundi, and arrived at

the settlement, into which I was escorted by the natives raising loud shouts, on the 15th. Here my kind friends made me as comfortable as they could. Mr. Eyre had gone to England on leave of absence, and Mr. Nation was filling his appointment as Resident.

On the 17th I mounted my horse for the first time since I had been taken ill in November, and had scarcely left Moorundi when I met my good friends Mr. Charles Campbell and Mr. A. Hardy in a carriage to convey me to Adelaide. I reached my home at midnight on the 19th of January, and, on crossing its threshold, raised my wife from the floor on which she had fallen, and heard the carriage of my considerate friends roll rapidly away.

Mr. Eyre's house at Moorundi.

CHAPTER IV.

REMARKS ON THE SEASON—DRY STATE OF THE ATMOSPHERE—THERMOMETRICAL OBSERVATIONS—WINDS IN THE INTERIOR—DIRECTION OF THE RANGES—GEOLOGICAL OBSERVATIONS—NON-EXISTENCE OF ANY CENTRAL CHAIN—PROBABLE COURSE OF THE STONY DESERT—WHETHER CONNECTED WITH LAKE TORRENS—OPINIONS OF CAPTAIN FLINDERS—NO INFORMATION DERIVED FROM THE NATIVES—THE NATIVES—THEIR PERSONAL APPEARANCE—DISPROPORTION BETWEEN THE SEXES—THE WOMEN—CUSTOMS OF THE NATIVES—THEIR HABITATIONS—FOOD—LANGUAGE—CONCLUSION.

HAVING thus brought my narrative to a conclusion I shall trespass but little more on the patience of the reader. It appears to me that a few observations are necessary to clear some parts, and to make up for omissions in the body of my work. I have written it indeed under considerable disadvantage; for although I have in a great measure recovered from the loss of sight consequent on my former services, I cannot glance my eye so rapidly as I once did over such a voluminous document as this journal; and I feel that I owe it to the public, as well as to myself, to make this apology for its imperfections.

There were two great difficulties against which, during the progress of the expedition, I had to contend. The one was, the want of water; the other, the nature of the country. That it was altogether impracticable for wheeled carriages of any kind, may readily be conceived from my description; and in the state in which I found it, horses were evidently unequal to the task. I cannot help thinking that camels might have done better; not only for their indurance, but because they carry more than a horse. I should, undoubtedly, have been led to try those animals if I could have procured them; but that was impossible. Certain however it is, that I went into the interior to meet with trials that scarcely camels could have borne up against; for I think there can be no doubt, from the facts I have detailed, that the season, during which this expedition was undertaken, was one of unusual dryness; but although the arid state of the country contributed so much to prevent its movements, I question whether, under opposite circumstances, it would have been possible to have pushed so far as the party succeeded in doing. Certainly, if the ground had been kept in a state of constant saturation, travelling would have been out of the question; for the rain of July abundantly proved how impracticable any attempt to penetrate it under such circumstances would have been.

It is difficult to say what kind of seasons prevail in Central Australia. That low region does not, as

far as I can judge, appear to be influenced by tropical rains, but rather to be subject to sudden falls. That the continent of Australia was at one time more humid than it now is, appears to be an admitted fact; the marks of floods, and the violence of torrents (none of which have been witnessed), are mentioned by every explorer as traceable over every part of the continent; but no instance of any general inundation is on record: on the contrary the seasons appear to be getting drier and drier every year, and the slowness with which any body exposed to the air decomposes, would argue the extreme absence of moisture in the atmosphere. It will be remembered that one of my bullocks died in the Pine Forest when I was passing through it in December, 1844. In July, 1845, when Mr. Piesse was on his route home from the Depôt in charge of the home returning party, he passed by the spot where this animal had fallen; and, in elucidation of what I have stated, I will here give the extract of a letter I subsequently received from him from India. Speaking of the humidity of the climate of Bengal, he says: "It appears to me that heat alone is rather a preservative from decomposition; of which I recollect an instance, in the bullock that died in the march through the Pine scrub on the 1st of January, 1845. When I passed by the spot in the following July, the carcase was dried up like a mummy, and was in such a perfect state of preservation as to be easily recognised."

No stronger proof, I apprehend, could have been adduced of the dryness of the atmosphere in that part of the interior, or more corroborative of the intensity of heat there during the interval referred to; but the singular and unusual effects it had on ourselves, and on every thing around was equally corroborative of the fact. The atmosphere on some occasions was so rarified, that we felt a difficulty in breathing, and a buzzing sensation on the crown of the head, as if a hot iron had been there.

There were only two occasions on which the thermometer was noticed to exceed the range of 130° in the shade, the solar intensity at the same time being nearly 160°. The extremes between this last and our winter's cold, when the thermometer descended to 24° was 133°. I observe that Sir Thomas Mitchell gives the temperature at the Bogan, in his tent at 117° and when exposed to the wind at 129°; but I presume that local causes, such as radiation from stones and sand, operated more powerfully with us than in his case. Whilst we were at the Depôt about May, the water of the creek became slightly putrid, and cleared itself like Thames water; and during the hotter months of our stay there, it evaporated at the rate of nearly an inch a day, as shewn by a rod Mr. Browne placed in it to note the changes, but the amount varied according to the quiescent or boisterous state of the atmosphere. It will readily be believed that in so heated a region the air was seldom still; to the currents sweeping over it we had

to attribute the loathsome and muddy state of the water on which we generally subsisted after we left that place, for the pools from which we took it were so shallow as to be stirred up to the consistency of white-wash by the play and action of the wind on their surfaces. During our stay at the Depôt the barometer never rose above 30·260, or fell below 29·540.

From December, 1844, to the end of April of the following year, the prevailing winds were from E.N.E. to E.S.E., after that month they were variable, but westerly winds predominated. The south wind was always cold, and its approach was invariably indicated by the rise of the barometer.

The rain of July commenced in the north-east quarter and gradually went round to the north-west; but more clouds rose from the former point than from any other. The sky generally speaking was without a speck, and the dazzling brightness of the moon was one of the most distressing things we had to endure when out in the bush. It was impossible indeed to shut out its light which ever way one turned, and its irritating effects were remarkable.

It will be observable to those who cast their eyes over the chart of South Australia that the range of mountains between St. Vincent's Gulf and the Murray river runs up northwards into the interior. In like manner the ranges crossed by the Expedition also ran in the same direction. The Black Rock Hill, so named by Captain Frome, is in lat. 32° 45′ and in

the 139th meridian, and is the easternmost of the chain to which it belongs. Mount Gipps on the Coonbaralba range is in lat. 31° 52′ and in long. 141° 41′, but from that point the ranges trend somewhat to the westward of south, and consequently, may run nearer to that (of which the Black Rock Hill forms so prominent a feature) than we may suppose, but there is a distance of nearly 150 miles of country still remaining to be explored, before this point can be decided. Nevertheless, it is more than probable the two chains are in some measure connected, especially as they greatly resemble each other in their classification. They are for the most part composed of primary igneous rocks, amongst which there is a general distribution of iron, and perhaps of other metals. The iron ore, however, that was discovered during the progress of the Expedition, of which Piesse's Knob is a remarkable specimen, was of the purest kind.

It was, as has been found in South Australia, a surface deposit, protruding or cropping out of the ground in immense clean blocks. This ore was highly magnetic; the veins of the metal run north and south, the direction of the ranges, as did a similar crop on the plains at the S.E. base of the ranges. Generally speaking there was nothing bold or picturesque in the scenery of the Barrier Range, but the Rocky Glen and some few others of a similar description were exceptions. As the Barrier Range ran parallel to the coast ranges, so there were other ranges to the eastward of the Barrier Range, running parallel to it, and they were separated by broad plains, partly open and partly covered with brush. The general elevation of the ranges was about 1200 feet above the level of the sea, but some of the hills exceeded 1600. Mount Lyell was 2000; Mount Gipps 1500; Lewis's Hill 1000: but the general elevation of the range might be rather under than over what I have stated. It appears to me that the whole of the geological formation of this portion of the continent is the same, and that all the lines of ranges terminate in the same kind of way to the north, that is to say, in detached flat-topped hills of compact or indurated quartz shewing white and abrupt faces. So terminated the Coonbaralba Range, and so Mr. Eyre tells us did the Mount Serle Range, and so terminated the range we saw to the westward of Lake Torrens.

That they exhibit evidences of a past violent commotion of waters, I think any one who will follow my steps and view them, will be ready to admit.

That the range of hills I have called "Stanley's Barrier Range," and that all the mountain chains to the eastward and westward of it, were once so many islands I have not the slightest doubt, and that during the primeval period, a sea covered the deserts over which I wandered; but it is impossible for a writer, whatever powers of description he may have, to transfer to the minds of his readers the same vivid impressions his own may have received, on a view of any external object.

From the remarks into which I have thus been led, as well as those which have escaped me in the course of this narrative, it will be seen that the impressions I had received as to the past and present state of the continent were rather strengthened than diminished, on my further knowledge of its internal structure.

It is true, that I did not find an inland sea as I certainly expected to have done, but the country as a desert was what I had anticipated, although I could not have supposed it would have proved of such boundless extent.

Viewing the objects for which the Expedition was equipped, and its results, there can, I think, be no doubt, as to the non-existence of any mountain ranges in the interior of Australia, but, on the contrary, that its central regions are nearly if not quite on a sea level, and that the north coast is separated from the south as effectually as if seas rolled between them. I have stated my opinion that that portion

of the desert which I tried to cross continues with undiminished breadth to the Great Australian Bight, and I agree with Captain Flinders, in supposing that if an inland sea exists any where, it exists underneath and behind that bank, (speaking from seaward). It would, I think, be unreasonable to suppose that such an immense tract of sandy desert, once undoubtedly a sea-bed, should immediately contract; considering, indeed, the sterile character of the country to the north of Gawler's Range, to the westward of Port Lincoln, and along the whole of the south coast of Australia, nearly to King George's Sound, I must confess I have no hope of any inland fertile country. I am aware it is the opinion of some of my friends that the Stony Desert may communicate with Lake Torrens. Such may have been and still may be the case—I will not argue the contrary, or answer for the changes in so extraordinary a region. I only state my own ideas from what I observed, strengthened by my view of the position I occupied, when at my farthest north; we will therefore refer to that position, and to the position of Lake Torrens, and see how far it is probable, that a large channel, such as I have described the Stony Dessert to be, should turn so abruptly, as it must do to connect itself with that basin; the evident fall of the interior, as far as that fact could be ascertained, being plainly from east to west.

The western shore of Lake Torrens, as laid down by Mr. Eyre, is in 137° 40′ or thereabouts. Its

eastern shore in 141° of longitude. Its southern extremity being in lat. 28½°. My position was in 138° of long. and 24° 40′ of latitude. I was therefore within 20 miles as far to the westward of the westernmost part of Lake Torrens, and was also 250 geographical miles due north of it. To gain Lake Torrens, the Stony Desert must turn at a right angle from its known course, and in such case hills must exist to the westward of where I was, for hills alone could so change the direction of a current, but the whole aspect of the interior would argue against such a conclusion. I never lost sight of the probability of Lake Torrens being connected with some central feature, until my hopes were destroyed by the nature of the country I traversed, nor do I think it probable that in so level a region as that in which I left it, there is any likelihood of the Stony Desert changing its direction so much as to form any connection with the sandy basin to which I have alluded. Nevertheless it may do so. We naturally cling to the ideas we ourselves have adopted, and it is difficult to transfer them to the mind of another. In reference however to what I had previously stated, I would give the following quotation from Flinders. His impressions from what he observed while sailing along the coast, in a great measure correspond with mine when travelling inland, the only point we differ upon is as to the probable origin of the great sea-wall, which appeared to him to be of calcareous formation, and he therefore concluded that it had

been a coral reef raised by some convulsion of nature. Had Capt. Flinders been able to examine the rock formation of the Great Australian Bight, he would have found that it was for the most part an oolitic limestone, with many shells imbedded in it, similar in substance and in formation to the fossil bed of the Murray, but differing from it in colour.

"The length of these cliffs from their second commencement is 33 leagues, and that of the level bank from New Cape Paisley, where it was first seen from the sea, no less than 145 leagues. The height of this extraordinary bank is nearly the same throughout, being nowhere less by estimation than 400 feet, not anywhere more than 600. In the first 20 leagues the rugged tops of some inland mountains were visible over it, but during the remainder of its long course, the bank was the limit of our view.

"This equality of elevation for so great an extent, and the evidently calcareous nature of the bank, at least in the upper 200 feet, would bespeak it to have been the exterior line of some vast coral reef, which is always more elevated than the interior parts, and commonly level with high water mark. From the gradual subsiding of the sea, or perhaps from some convulsion of nature, this bank may have attained its present height above the surface, and however extraordinary such a change may appear, yet when it is recollected that branches of coral still exist, upon Bald Head, at the elevation of 400 feet or more, this supposition assumes a degree of probability, and it

would farther seem that the subsiding of the waters has not been at a period very remote, since these frail branches have yet neither been all beaten down nor mouldered away by the wind and weather.

"If this supposition be well founded, it may with the fact of no other hill or object having been perceived above the bank in the greater part of its course, assist in forming some conjecture as to what may be within it, which cannot as I judge in such case, be other than flat sandy plains or water. The bank may even be a narrow barrier between an interior and the exterior sea, and much do I regret the not having formed an idea of this probability at the time, for notwithstanding the great difficulty and risk, I should certainly have attempted a landing upon some part of the coast, to ascertain a fact of so much importance."

Had there been any inland ranges they would have been seen by that searching officer from the ocean, but it is clear that none exists; for Mr. Eyre in his intercourse with the natives, during his journey from South Australia to King George's Sound, elicited nothing from them that led him to suppose that there were any hills in the interior, or indeed that an inland sea was to be found there; even the existence of one may reasonably be doubted, and it may be that the country behind the Great Australian Bight is, as Captain Flinders has conjectured, a low sandy country, formed by a channel of 400 or 500 miles in breadth, separating

the south coast of the continent from the west and north ones. Although I did not gain the direct centre of the continent there can be very little doubt as to the character of the country round it. The spirit of enterprise alone will now ever lead any man to gain it, but the gradual development of the character of the yet unexplored interior will alone put an end to doubts and theories on the subject. The desert of Australia is not more extensive than the deserts in other parts of the world. Its character constitutes its peculiarity, and that may lead to some satisfactory conclusion as to how it was formed, and by what agent the sandy ridges which traverse it were thrown up. I would repeat that I am diffident of my own judgment, and that I should be indebted to any one better acquainted with the nature of these things than I am to point out wherein I am in error.

It remains for me, before I close this part of my work, to make a few observations on the natives with whom we communicated beyond the river tribes. Mr. Eyre has given so full and so accurate an account of the natives of the Murray and Darling that it is needless for me to repeat his observations. I would only remark that I attribute our friendly intercourse with them to the great influence he had gained over them by his judicious conduct as Resident Protector at the Murray. I fully concur with him in the good that resulted from the establishment of a post on that river, for the express pur-

pose of putting a stop to the mutual aggression of the overlanders and natives upon each other. I have received too many kindnesses at the hands of the natives not to be interested in their social welfare, and most fully approved the wise policy of Captain Grey, in sending Mr. Eyre to a place where his exertions were so eminently successful.

In another place I may be led to make some remarks on the condition of the natives of South Australia, but at present I have only to observe upon that of the natives of the distant interior with whom no white man had ever before come in contact.

If I except the tribe upon Cooper's Creek, on which they are numerous, the natives are but thinly scattered over the interior, as far as our range extended. The few families wandering over those gloomy regions may scarcely exceed one hundred souls. They are a feeble and diminutive race when compared to the river tribes, but they have evidently sprung from the same parent stock, and local circumstances may satisfactorily and clearly account for physical differences of appearance. Like the tribes of the Darling and the Murray, and indeed like the aborigines of the whole continent, they have the quick and deep set eye, the rapidly retiring forehead, and the great enlargement of the frontal sinus, the flat nose and the thick lip. It is quite true that many have not the depression of the head so great, but in such cases I think an

unusual proportion of the brain lies behind the ear. In addition, however, to the above physiognomical resemblances, they have the same disproportion between the upper region of the body and the lower extremities, the same prominent chest, and the same want of muscular development, and in common with all the natives I have seen, their beards are strong and stand out from the chin, and their hair the finest ornament they possess, only that they destroy its natural beauty by filth and neglect, is both straight and curly. Their skins are nearly of the same hue; nor did we see any great difference, excepting in one woman, whose skin was of a jet black. Two young women, however, were noticed who had beautiful glossy ringlets, of which they appeared to be exceedingly proud, and kept clean, as if they knew their value. Both Mr. Browne and myself observed a great disparity of numbers in the male and female children, there being an excess of the latter of nearly two to one, and in some instances of a still greater disproportion.

This fact was also obvious both to Mr. Stuart and myself in the tribe on Cooper's Creek, in which the number of female children greatly exceeded that of the male, though there were more adult men than women. The personal appearance of the men of this tribe, as I have already stated, was exceedingly prepossessing—they were well made and tall, and notwithstanding that my long-legged friend was an ugly fellow, were generally good looking. Their

children in like manner were in good condition and appeared to be larger than I had remarked elsewhere, but with the women no improvement was to be seen. Thin, half-starved and emaciated they were still made to bear the burden of the work, and while the men were lounging about their fires, and were laughing and talking, the women were ceaselessly hammering and pounding to prepare that meat, of which, from their appearance, so small a proportion fell to their share. As regards the treatment of their women, however, I think I have observed that they are subjected to harsher treatment when they are members of a large tribe than when fewer are congregated together. Both parents are very fond of and indulgent to their children, and there is no surer way of gaining the assistance of the father, or of making a favourable impression on a tribe than by noticing the children.

I think that generally speaking the native women seldom have more than four children, or if they have, few above that number arrive at the age of puberty. There are, however, several reasons why the women are not more prolific; the principal of which is that they suckle their young for such a length of time, and so severe a task is it with them to rear their offspring that the child is frequently destroyed at its birth; and however revolting to us such a custom may be, it is now too notorious a fact to be disputed.

The voices of the natives, generally speaking, are soft, especially those of the women. They are also

a merry people and sit up laughing and talking all night long. It is this habit, and the stars so constantly passing before their eyes, which enables them to know when they are likely to have rain or cold weather, as they will point to any star and tell you that when it shall get up higher then the weather will be cold or hot.

These primitive people have peculiar customs and ceremonies in their intercourse with strangers, and on first meeting preserve a most painful silence; whether this arises from diffidence or some other feeling it is difficult to say, but it is exceedingly awkward; but, however awkward or embarrassing it may be, there can be no doubt as to the policy and necessity of respecting it. The natives certainly do not allow strangers to pass through their territory without permission first obtained, and their passions and fears are both excited when suddenly intruded upon. To my early observation of this fact, and to my forbearing any forced interview, but giving them time to recover from the surprise into which my presence had thrown them, I attribute my success in avoiding any hostile collision. I am sure, indeed, whatever instances of violence and murder may be recorded of them, they are naturally a mild and inoffensive people.

It is a remarkable fact that we seldom or ever saw weapons in the hands of any of the natives of the interior, such as we did see were similar to those ordinarily used by natives of other parts of the con-

tinent. Their implements were simple and rude, and consisted chiefly of troughs for holding water or seeds, rush bags, skins, stones, etc. The native habitations, at all events those of the natives of the interior, with the exception of the Cooper's Creek tribe, had huts of a much more solid construction than those of the natives of the Murray or the Darling, although some of their huts were substantially built also. Those of the interior natives however were made of strong boughs with a thick coating of clay over leaves and grass. They were entirely impervious to wind and rain, and were really comfortable, being evidently erections of a permanent kind to which the inhabitants frequently returned. Where there were villages these huts were built in rows, the front of one hut being at the back of the other, and it appeared to be a singular but universal custom to erect a smaller hut at no great distance from the large ones, but we were unable to detect for what purpose they were made, unless it was to deposit their seeds; as they were too small even for children to inhabit. At the little hut to the north of the ranges, from which the reader will recollect we twice frightened away a poor native, we found a very large spear, apparently for a canoe, which I brought to the camp. This spear could not possibly have been used as a weapon, for it was too heavy, but on shewing it subsequently to some natives, they did not intimate that it was a canoe spear.

It may be thought that having been in the interior for so many months I ought to have become

acquainted with many of the customs and habits of the people inhabiting it, but it will have been seen that they seldom came near us.

The custom of circumcision generally prevailed, excepting with the Cooper's Creek tribe, but you would meet with a tribe with which that custom did not prevail, between two with which it did.

As regards their food, it varies with the season. That which they appeared to me to use in the greatest abundance were seeds of various kinds, as of grasses of several sorts, of the mesembryanthemum, of the acacia and of the box-tree; of roots and herbs, of caterpillars and moths, of lizards and snakes, but of these there are very few. Besides these they sometimes take the emu and kangaroo, but they are never so plentiful as to constitute a principal article of food. They take ducks when the rains favour their frequenting the creeks and lagoons, exactly as the natives of other parts of Australia do, with nets stuck up to long poles, and must procure a sufficiency of birds during the summer season. They also wander among the sand ridges immediately after a fall of rain, to hunt the jerboa and talperoo, (see Nat. Hist.,) of which they procure vast supplies; but all these sports are temporary, particularly the latter, as the moment the puddles dry up the natives are forced to retreat and fall back on previous means of subsistence.

With regard to their language, it differed in different localities, though all had words common to each

respectively. My friend Mr. Eyre states, that they have not any generic name for anything, as tree, fish, bird; but in this, as far as the fish goes, I think he is mistaken, for the old man who visited our camp before the rains, and who so much raised our hopes, certainly gave them a generic name; for placing his fingers on such fish as he recognised, he distinctly mentioned their specific name, but when he put his fingers on such as he did not recognise, he said "Guia, Guia, Guia," successively after each, evidently intending to include them under the one name. With respect to their religious impressions, if I may so call them, I believe they have none. The only impression they have is of an evil spirit, but however melancholy the fact, it is no less true that the aborigines of Australia have no idea of a superintending Providence.

In conclusion: I have spoken of Mr. Browne and Mr. Piesse throughout my narrative, in terms such as I feel they deserved. I should be sorry to close its pages without also recording the valuable and cheerful assistance I received from Mr. Stuart, whose zeal and spirit were equally conspicuous, and whose labour at the charts did him great credit. To Flood I was indebted for having my horses in a state fit for service, than whom as a person in charge of stock, I could not have had a better; and I cannot but speak well of all the men in their respective capacities, as having always displayed a willingness to bear with me, when ever I called on them to do so, the fatigues and exposure incidental to such a service as that on which I was employed.

Before closing my narrative I would make a few observations on the conduct of such an Expedition as the one the details of which I have just been giving.

It appears to me then that discipline is the first and principal point to be considered on such occasions; unless indeed the leader be implicitly obeyed it is impossible that matters should go on regularly. For this reason it is objectionable to associate any irresponsible person in such an undertaking. When I engaged the men who were to accompany me, I made them sign an agreement, giving me power to diminish or increase the rations, and binding themselves not only to the performance of any particular duty, but to do everything in their power to promote the success of the service in which they were engaged, under the penalty of forfeiture of wages, in whole or part as I should determine. I deemed it absolutely necessary to arm myself with powers with which I could restrain my men even in the Desert, before I left the haunts of civilized man, although I never put these powers in force,—and this appears to me to be a necessary precaution on all such occasions. Equally necessary is the establishment of a guard at night, for it is impossible to calculate on the presence of natives—they may be close at hand, when none have been seen or heard during the day. Had Dr. Leichhardt adopted this precaution his camp would not have been surprised, nor would he have lost a valuable companion. Equally necessary is it to keep the stock, whether horses or bullocks, constantly within view. In all

situations where I thought it probable they might wander I had them watched all night long. Unless due precaution however is used to ensure their being at hand when wanted, they are sure to wander and give ceaseless trouble.

As regards the consumption of provisions, I had both a weekly and a monthly statement of issues. In addition to this they were weighed monthly and their loss ascertained, and their consumption regulated accordingly, and I must say that I never found that the men were disposed to object to any reasonable reduction I made. I found the sheep I took with me were admirable stock, but I was always aware that an unforeseen accident might deprive me of them, and indeed they called for more watchful care even than the other stock. The men at the Depôt were never without their full allowance of mutton. It was only the parties out on distant and separate services who were reduced to an allowance scarcely sufficient to do their work upon.

The attention of a Leader is no less called to all these minutiæ than his eye and judgment to the nature of the country in which he may happen to be. I would observe that in searching for water along the dry channel of a creek, he should watch for the slightest appearance of a creek junction, for water is more frequently found in these lateral branches, however small they may at first appear to be, than in the main creek itself, and I would certainly recommend a close examination of them. The explorer will ever find the gum-tree in the neighbour-

AN ACCOUNT

OF THE

SEA COAST AND INTERIOR

OF

SOUTH AUSTRALIA,

WITH

OBSERVATIONS ON VARIOUS SUBJECTS CONNECTED WITH ITS INTERESTS.

CHAPTER I.

DUTIES OF AN EXPLORER — GEOGRAPHICAL POSITION OF SOUTH AUSTRALIA—DESCRIPTION OF ITS COAST LINE—SEA MOUTH OF THE MURRAY—ENTERED BY MR. PULLEN—RISE OF THE ATTEMPT—BEACHING—ROSETTA HARBOUR—VICTOR HARBOUR—NEPEAN BAY—KANGAROO ISLAND—KINGSCOTE—CAPT. LEE'S INSTRUCTIONS FOR PORT ADELAIDE—PORT ADELAIDE—REMOVAL TO THE NORTH ARM—HARBOUR MASTER'S REPORT—YORKE'S PENINSULA—PORT LINCOLN—CAPT. LEE'S INSTRUCTIONS—BOSTON ISLAND—BOSTON BAY—COFFIN'S BAY—MR. CAMERON SENT ALONG THE COAST—HIS REPORT—POSITION OF PORT ADELAIDE.

No mariner ever shook the reefs from his sails, on the abatement of the storm, under the fury of which his vessel had been labouring, with more grateful feelings than those with which I turn from the dreary and monotonous wastes I have been describing, to the contemplation of fairer and more varied scenes. My weary task has been performed, and however uninteresting my narrative may have proved to the general reader, I would yet hope, that those who shall hereafter enter the field of Australian discovery, will profit from my experience, and be spared many of the inconveniences and sufferings to which I was unavoidably exposed. They

may rest assured, that it is only by steady perseverance and unceasing attention, by due precaution and a mild discipline, that they will succeed in such an undertaking as that in which I was engaged. That unless they are fortunate enough to secure such an assistant as I had in Mr. Browne, their single eye must be over every thing, to study the features of the country through which they are passing, to keep their horses and cattle always within view, to prevent disputes in their camp, and to husband their provisions with the utmost care, to ascertain from time to time the quantity they may have on hand, and to regulate their consumption accordingly. Few difficulties present themselves to the explorer in journeying down a river, for that way is smooth before him; it is when he quits its banks, and traverses a country, on the parched surface of which little or no water is to be found, that his trials commence, and he finds himself obliged to undergo that personal toil, which sooner or later will lay him prostrate. Strictly speaking, my work should close here. I am not, however, unmindful of the suggestion I made in my Preface, that a short notice of South Australia at the close of my journal would not be out of place.

In the following pages, therefore, it is proposed to give some account of that province, from whence, as the reader is aware, I took my departure, before commencing my recent labours. Its circumstances and prospects have, I know, of late, been frequently

brought before the public, but, I trust, nevertheless, that my observations will carry something of novelty, if not of interest, and utility with them.

South Australia, then, the youngest of the colonies that have been established round the shores of the Australian Continent, is situate, as its name would imply, upon its southern coast. It extends from the 132nd to the 141st degree of longitude east from Greenwich, and runs up northwards into the interior to the 26th parallel of latitude. The district of Port Phillip bounds it on the east, for which reason, the fixing of the eastern boundary line between those two fine provinces has of late been a point of great interest and importance. Mr. Tyers, an able and intelligent officer, was employed by the Government of New South Wales, primarily to determine the longitude of the mouth of the Glenelg, and from his triangulations and observations it would appear that the 141st meridian falls on the coast about a mile and a half to the eastward of it. Subsequent observations, taken by Captain Stokes, in command of Her Majesty's surveying ship, the Beagle, differ slightly from the result of Mr. Tyers' observations, but they prove beyond doubt, the care and accuracy with which the latter officer carried on his survey. The point, has since, I believe, been finally recognised by the governments of Sydney and Adelaide, and the boundary line been marked to the distance of 123 miles from the coast. The party employed in this useful undertaking, however, was obliged to relinquish it for a time, in consequence of heavy

rains; but it is not probable that any dispute will hereafter arise on the question. If the line could have been extended to the Murray river, it would have been as well, but the desert country beyond it is valueless to civilised man. Taking it for granted, then, that the S.E. angle of the province of South Australia has been fixed, we shall in the first instance proceed along its sea line, and notice any thing worthy of observation, before we enter into a detail as to the character of the country itself.

From the mouth of the Glenelg the coast of South Australia trends to the westward as far as Cape Northumberland in long. 140° 37′ and in lat. 38°;* from Cape Northumberland it turns to the N.N.W., keeping that general direction for more than 100 miles. Between the last mentioned Cape and Cape Morard des Galles in lat. 36½°, there are several bays, two only of which, Rivoli Bay, immediately to the north of Cape Lannes, and Guichen Bay, a little to the south of Cape Bernouilli, have more particularly drawn the attention of the local Government, rendered necessary in consequence of the rapid settlement of the back country. Recent surveys have enhanced the value of these two bays, and townships have been laid out at each. That at Rivoli bay being called Grey Town, that of Guichen bay Robe Town. At the latter, there is a resident magistrate and a party of mounted police. Many allotments have

* The reader will be good enough to bear in mind that the Longitudes in this work are all east of Greenwich, and that the Latitudes are south.

been sold in both towns, and although the bays offer but little protection to large vessels, they are of great importance to the colonial trade and to the settlers occupying the beautiful and fertile country in the neighbourhood of Mounts Gambier and Shanck. From Cape Morard des Galles, a low dreary and sandy beach extends for five leagues beyond the sea mouth of the Murray, a distance of more than 100 miles. This beach, which varies in breadth from one to three miles, conceals the waters of the Coorong, and the depressed and barren country beyond it is completely hid from view by the bright sand-hills on this long and narrow strip of land.

The sea mouth of the Murray, famous for the tragical events that have occurred near it, and which give a melancholy interest to the spot, is in long. 138° 56′ and in lat. 35° 32′. No one could, I am sure, look on the foaming waters of that wild line of sand-hills through which it has forced a channel, without deep feelings of awe and emotion. Directly open to the Southern Ocean, the swell that rolls into Encounter Bay, is of the heaviest description. The breakers rise to the height of fifteen or eighteen feet before they burst in one unbroken line as far as the eye can see, and as the southerly is the most prevailing wind on that part of the Australian coast, it is only during the summer season, and after several days of northerly wind that the sea subsides, and the roar of breakers ceases for a time. The reader will perhaps bear in mind that the channel of the Goolwa connects Lake Victoria

with Encounter Bay, the sea mouth of the Murray being the outlet through which its waters are discharged into the ocean.

The channel of the Goolwa (now called Port Pullen, in compliment to an officer of that name on the marine survey staff of the province, who succeeded, after several disappointments, in taking a small cutter through that narrow passage, and navigating her across the lake into the Murray River, as high as the settlement of Moorundi) is to the westward of the sea mouth as the Coorong is to the eastward.*

But although Mr. Pullen succeeded in getting into the Goolwa, it was only under the most favourable circumstances, nor will the sea mouth of the Murray ever, I fear, be available for navigable purposes. How far it may be practicable to steamers, I would not hazard an opinion, nor is the subject at the present moment one of much importance, for the country to the eastward of the ranges is not yet sufficiently located to call for such a speculation.

The sea mouth of the Murray is about the

* The compliment thus paid to Mr. Pullen, who is now employed on the expedition to the North Pole, in search of Sir John Franklin, by Col. Gawler, the then Governor, was well merited, as a reward for the perseverance and patience he had shewn on the occasion—for those only who have been at the spot can form an idea of the disturbed and doubtful character of the place, and the risk there must have been in the attempt to enter such a passage for the first time.

third of a mile in breadth, and when the river is flooded a strong current runs out of it with such rapidity, that the tide setting in at the same time causes a short and bubbling sea. It took Captain Barker nine minutes and fifty-eight seconds to swim across it on the fatal occasion on which he lost his life —but he was obliged to go somewhat above the outlet, as the stream would otherwise have carried him amidst the breakers. The western shore is very low, but the eastern one is marked by a large sand-hill, now called Barker's Knoll, after that talented and amiable officer. From seaward, nothing but a wild line of sand-hills meets the view, such as few mariners would venture to approach, and through which fewer still could hope to find a passage into the calmer waters of Lake Victoria, so completely hidden is the entrance. It was only by patient watching indeed, that Mr. Pullen seized the opportunity by which he entered the Goolwa. He was not the first, however, who did so, as Captain Gill, the master of a small cutter that was unfortunately wrecked on the strand at some distance to the eastward of the outlet, was the first to come down the Coorong in his boat, in which he ultimately reached Victor Harbour, but he also had to remain three weeks under the sand-hills before he could venture forth. Some years prior to this, however, Sir John Jeffcott, the first judge of South Australia, and Captain Blenkensorf, the head of the fishery, both found a watery grave in attempting to pass from the Goolwa into Encounter Bay.

I speak more particularly on the point, however, because, in 1838, during my first visit to the province, I went with a party of hardy seamen, with the intention, if possible, of passing into the Goolwa from seaward. At Encounter Bay, Captain Hart, who had the superintendence of the fishery there, gave me his most experienced steersman, and a strong whale-boat. In this I left Victor harbour for Freeman's Nob, a small rocky point in the very bight of Encounter Bay, where I remained until three A.M. of the next morning, when I started for the outlet under the most favourable auspices. A northerly wind had been blowing off the land for several days, and the sea was so tranquil that I had every hope of success. I had five leagues to pull, and keeping about a mile from the shore, swept rapidly along it. We were still about four miles from the inlet when the sun rose over it, as if encouraging us onwards. On approaching it at low water, I tried in vain to enter. The sea was breaking heavily right across the entrance from one side to the other, and after several ineffectual attempts to run in, I came to an anchor, close to the outer line of breakers, hoping that the sea would subside at high water and that we should then have less difficulty. We had not, however, been in this position more than half an hour, when a heavy southerly swell set in; from a deep blue the water became green, and the wind suddenly flew round to the S.W. Before we could weigh and stand out from the shore, several seas had broken outside of us, and in less than ten minutes

the whole coast, to the distance of more than a mile from the shore, was white with foam, and it seemed clear that a gale was coming on. Under these circumstances I determined on returning to the little harbour from which we had started in the morning, but the wind being directly against us, we made very little head. "We shall never get to the Nob," said Mr. Witch, who had the steer oar, to me; "it blows too hard, Sir." "What are we to do, then?" said I. "Why, Sir," he replied, we must either beach or run out to sea," "We will beach, then," I said; "it is better to try that than to do any thing else." Mr Witch evinced some surprise at my decision, but made no remark. "You had better select your place," I observed, "and be careful to keep the boat's head well on to the seas." "You need not fear me, Sir," said the hardy seaman; "I am accustomed to such work. It looks worse than it really is." The sea, however, was now breaking full a mile and a half from the shore, and in looking towards it I observed a solitary horseman riding slowly along, as if watching our movements. At length Mr. Witch said that he thought we were opposite to a favourable spot, on which I directed him to put the boat's head towards the shore, and to keep her end on as he went in. Round we flew, and in a moment after we were running at railway speed on the top of a heavy wave. "Steady, men," said Mr. Witch: "Steady all," and on we went; but looking round him a moment after — "Back, all. Back, all," he cried. The men did as they

were ordered, and the boat's way was stopped. Her stern rose almost perpendicularly over the prow, and the next moment fell into the trough of the sea. The wave, transparent as bottle glass, rushed past us, and topping, as it is called, burst at our very bow, in a broad sheet of foam. "Give way, my lads," was the next order of the watchful steersman, as he again cast his eyes behind him. "Give way, my lads. Give way, all." "Steady, men," he called, as if doubtful of the result of the coming wave. I thought I saw paleness on the face of the rowers, but they pulled regularly and well, and a thundering sound soon told us we had escaped the threatening sea that had come so rapidly up. I do not know if I am doing justice to the occurrence. There was more of apparent than real danger in it, and I myself was less nervous, because I had not long before been accustomed to the heavy surf of Norfolk Island. It was, however, a moment of great excitement. We had literally shot towards the shore, and were now within fifty yards of it, when Mr. Witch said to me, "Take care of yourself, Sir; we shall catch it at last."

I turned round, and saw a large roller close upon us, just on the point of topping—I had scarcely time to stoop and give my back to it when it came upon us, and I never had such a thump in my life. The boat was filled in a moment and we were all thrown out—Mr. Witch, who had been standing, was hurled to a great distance, but the men were up in a moment, the water being about four feet deep, and

with admirable dexterity ran her on the beach. I do not remember ever having been in so strong a breeze. The reader may form some idea of it when I assure him that the wind rolled the boat over and over as if she had been as light as a carpenter's chip, and the sand and pebbles came with such violence in our faces, that we were obliged to retreat behind the sand hills until it moderated.

It was my friend Mr. Strangways who had accompanied me from Adelaide, whose figure we had seen on the beach, and he assured me that we seemed to fly as we approached him.

The wind having apparently flown permanently round to the south, and it being hopeless to expect that the sea would subside for many days, I hauled the boat over the sand hills, and launching her in the Goolwa, tried to row through the outlet to sea, but after remaining for eight days, and having my boat four times swamped, I was forced to give up the attempt as I had no time to spare. The distance between my outer and inner points might have been a cable's length. In endeavouring to pass out I shoaled to a quarter less one, having kept the lead constantly going. I abandoned the task therefore under an impression that the outlet was not navigable, yet Mr. Pullen succeeded in taking a small cutter into the Goolwa with perfect safety. I cannot but conclude therefore that it has a shifting bar, and that it will present difficulties to regular navigation that will only be surmounted by a better knowledge of its locality, and in all probability by artificial means.

From Freeman's Nob the coast line turns southwards to Rosetta Head, a bold and prominent conical hill, from the summit of which the whalers look for their game. Under the lea of Rosetta Head there is a small harbour called Rosetta Harbour. It is separated by a rocky island called Granite Island, and a reef that is visible at low water, and connects Granite Island with the main land from Victor Harbour, so called after H.M's ship Victor, when surveying in that quarter. Neither of these harbours however are considered secure, although they are protected from all but south-east winds.

It was in Rosetta Harbour, that during the early settlement of the Colony the South Australian Company's ship South Australian, was driven on shore and lost. The John Pirie, a strongly built schooner, also belonging to the Company, had well nigh shared her fate. This little vessel was lying astern of the Australian when she went ashore, with the reef close astern of her. In this fearful position her anchors began to drag, and her destruction appeared inevitable, when her commander, Captain Martin, determined on attempting to take her over the reef, it being high water at the time. He accordingly cut his cable, set his sails, and ran his vessel on the rocks. Four times she struck and was heaved as often over them, until at length she floated in the deeper water of Victor Harbour, and found her safety under the lea of the very danger from which she expected destruction. It was a bold resolve and deserved the success that attended it. I always feel

a pleasure in recording such events, not only from feelings of admiration, but because they are examples for men to follow when placed in equally hazardous circumstances, and shew that firmness and presence of mind are equal to almost every emergency. The anchorage in Victor Harbour is under the lea of Granite Island, but I believe it is foul and rocky, and until both it and Rosetta Harbour shall be better known, the seaman will enter them with caution. Encounter Bay indeed, is not a place into which the stranger should venture, as he would find it extremely difficult to beat out to sea with a contrary wind. Still no doubt vessels may find refuge at these places from strong west and south-west winds, but I have always understood that it is better for a ship encountering a gale at the entrance of Backstairs Passage rather to keep at sea, than seek shelter in any contiguous harbour.

There is room for two or three tolerably sized vessels in Victor Harbour, which is in longitude 188° 38′ 00″ and in latitude 35° 32′, and in certain seasons of the year it may be deemed secure, if it were not liable to other objections, but I have heard it stated by an experienced seaman, one whose intimate knowledge of this part of the coast of South Australia is indisputable, that there is anchorage under the lea of Freeman's Nob, and a small island off it, sufficient for two or three vessels of 250 or 300 tons, altogether preferable to either of those I have mentioned, as being more sheltered, and having better holding ground—but we must not forget that

it is deeper in the bay, and there would consequently be a greater difficulty in beating out; but the truth is that the importance and capabilities of these harbours will only be developed as the wants of the colonists render it necessary for them to have ports in this vicinity. When the country to the eastward of the mountains shall be more thickly peopled, and when the rich and fertile valleys of the Inman, the Hindmarsh and Currency Creek, and the available country between the two last, be more generally cultivated, and when the mines at the Reedy Creek and other places are at full work, the want of a harbour at Encounter Bay will be sufficiently apparent.

The principal whale fishery on the coast of South Australia is in Encounter Bay, and has, I believe, of late years proved as advantageous a speculation to those who have carried it on as could be expected; profits are of course dependent on contingencies, as the nature of the season and the number of whales that may visit the coast: but the fishery at Encounter Bay has certainly been as successful as any other on the coast, and would have been more so if the ground had not been intruded upon. As a source of colonial industry, and as a proof of commercial enterprise, I should regret to see this bold and hardy occupation abandoned. See Appendix.

From Rosetta Head the line of coast again trends for a short distance to the west, and forms, together with the opposite shore of Kangaroo Island, the

Backstairs Passage, or eastern entrance into St. Vincent's Gulf, of which Cape Jervis is the N.W. point. It is here that the more important navigation of the South Australian seas commences. The line of coast I have already described is not sufficiently known to be approached by the stranger without caution, nevertheless the several bays and harbours I have mentioned may offer better shelter and greater convenience than I am able to point out.

One of the first establishments, if not the very first, of the South Australian Company was on Kangaroo Island, on the shores of Nepean Bay. Here the town of Kingscote was laid out, and some very good houses built, which are now falling to dilapidation and decay, since it has been abandoned by the Company's servants for some years. Nevertheless Kingscote is a very pretty sea-port town, and the harbour is undoubtedly good. The bay is large enough to hold a number of ships, and is secure from all winds, being almost completely land-locked. The water inside moreover is smooth, since the bay is protected by a long spit of sand, whereby the roughness of the outer sea does not affect it, and vessels consequently lie there during heavy weather without any apparent motion. It is to be regretted, that, with such advantages, Kingscote Harbour should have any drawback, but when we have given credit for its capabilities as a harbour, we have done all, and even as a harbour, sailors are divided in opinion, whether or not American River, or a small bay, five

miles to the south-east of it, are not to be preferred. In Nepean Bay there is a deficiency of water, which is not the case in either of the last mentioned places. The soil is equally good in the neighbourhood of all three, but Kingscote having been occupied, the ground has been cleared of the dense brush that grew on it in a state of nature, and some of the most productive gardens in the Province are to be found there. It is astonishing what quantities of the finest onions are sent from Kingscote, with other produce, to Adelaide. The island is, however, so generally and so heavily covered with brushwood, that although the soil is good in many places, it has been found impracticable to clear. On the general character of Kangaroo Island, I would observe, that, from the reports of those best acquainted with it, nine-tenths of the surface is covered with dwarf gum-trees, or heavy low brush, that there are no plains of any consequence, no harbours excepting those I have already mentioned, — that water is generally scarce, and the best land is most heavily wooded and perfectly impenetrable; but, if it is thus useless and unavailable for pastoral and agricultural purposes, Kingscote, being so short a distance from Adelaide, holds out every inducement as a watering-place to those who, desiring change of air and sea-bathing, would wish to leave the heated neighbourhood of the capital during the summer months. It is a disadvantage to them that there are few places on the shores of St. Vincent's Gulf, on which

bathing places could be established, but the change of air at Kingscote would be as great a benefit as sea-bathing itself, for hot winds are not felt there, but a cool and refreshing breeze is almost constantly blowing. As a watering-place therefore, it may, one day or other, be of importance, when the convenience of steam-boats shall render the passage from Adelaide to Kangaroo Island, like a trip across the Channel. But it is to be observed that whatever disadvantages the island may possess, its natural position is of the highest importance, since it lies as a breakwater at the bottom of St. Vincent's Gulf, and prevents the effects of the heavy southerly seas from being felt in it. There is, perhaps, no gulf, whether it is entered by the eastern or western passage, the navigation of which is so easy as that of St. Vincent, and so clear of dangers, that it can only be by the most fortuitous circumstances, or the most culpable neglect, that any accident can befal a ship in its passage up to Adelaide.

Anxious to make this portion of my work as useful as possible, and feeling assured that the remarks I have hitherto made will only lead the seaman to adopt those measures of precaution in approaching any of the harbours and bays I have mentioned, our knowledge of which is still limited, I shall here quote a passage from a small book of Sailing Instructions for South Australia, published some years ago by Captain Lee, an experienced mariner, for the guidance of commanders of vessels bound to Port Adelaide.

I shall only observe that, in running up the Gulf it is extremely difficult to recognise the peak of Mount Lofty; but a pile of stones has been erected upon it, which is easily visible through a good telescope, and that the pilot station spoken of by Captain Lee as being five miles from Glenelg has been abandoned, and the pilots now board ships from the light vessel moored off the bar.

"Vessels from England bound to Port Adelaide, should, after leaving the Cape of Good Hope, run to the eastward in 37° or 38° south latitude, until they arrive in longitude 132° east, when they may haul to the northward, so as to get into latitude 36° 25′, in longitude 135° 30′; then steer to the north-east, and make Kangaroo Island, passing between which and a small island named Althorpe's Island, they will enter Investigator's Straits. These Straits form the western entrance to St Vincent's Gulf, and are so free from danger, that it seems almost wonderful how any vessel can get on shore without gross negligence. The only danger that can possibly affect a vessel is the Troubridge Shoal, and this, by a little attention to the lead, may be easily avoided, as on the south side of the shoal the water deepens gradually from four to seventeen or eighteen fathoms. The shores on the side of Kangaroo Island are bold and rocky, whilst on the north side, on Yorke's Peninsula, they are low and sandy. In working up in the night, stand no nearer to the north shore than nine fathoms, or to the southward than twelve fathoms. You will have from sixteen to twenty fathoms in the fair way—fine grey sand, mixed with small pieces of shell. In working up St. Vincent's Gulf, you may stand to the eastward in six fathoms, and towards the Troubridge Shoal in nine fathoms. The prevailing winds are from the south-west to south-east, especially in the summer months, when the sea breeze sets in about nine o'clock. The strength of tide in the Gulf is very irregular, with a strong south-west wind, the flood runs up at the rate of about two miles an hour, whilst with

a northerly wind it is scarcely perceptible. The anchorage in Holdfast Bay is hardly safe in the winter months, as it is quite open to north-west, west, and south-west winds, which, when blowing hard, raise a short tumbling sea. The ground is a fine sand, almost covered with weeds, so that when the anchor once starts, the weeds being raked up under the crown, will in a great measure prevent its again holding. In the summer months it may be considered a perfectly safe anchorage, if due caution is exercised in giving the vessel cable in time. The best anchorage for a large vessel is with the summit of Mount Lofty, bearing east in six fathoms. A small vessel will lay better close in, just allowing her depth of water sufficient to ride in.

"The pilot station for Port Adelaide is about five miles north of Holdfast Bay. In running up keep in five fathoms, until abreast of the flag-staff on the beach, when a pilot will come on board. It is always high water in Port Adelaide morning and evening, and consequently low water in the middle of the day. In the present state of the harbour, no vessel drawing more than sixteen feet water ought to go into the port. Several very serious accidents have befallen vessels in this port, for which the harbour itself ought certainly to be held blameless."

"Vessels," he adds, "from Sydney, or from the eastward, bound to Port Adelaide, having arrived at Cape Howe, should shape a course for Hogan's Group in Bass' Straits, when off which, with a northerly wind, the best passage through the Straits is between Redondo and Wilson's Promontory, because should a gale of wind come on from the north-west, as it almost invariably does commence in that quarter, they would have more drift to the south-east than if they passed through near Kent's Group or Sir R. Curtis's Island. It is also a great saving in distance. Having arrived off King's Island, with a north wind, stand well out to the west or south-west, so as to keep well to the southward of Cape Northumberland, as the heavy gales from the north-west seldom last more than forty-eight hours, when they veer to the south-west, and fine weather ensues. Being abreast of Cape Northumberland, a south-west wind will be a

favourable wind to proceed to Adelaide. Steer directly for the east end of Kangaroo Island, which you may pass at a distance of one mile; and if the wind is from the south or south-east, you may then steer across Backstairs Passage to Cape Jarvis; having arrived off which, proceed as directed before: should the wind be strong from south-west or west-south-west, keep Kangaroo Island close on board until abreast of Cape Jarvis, when you will have the Gulf open. Should it be night time or thick weather, and you have sighted Cape Willoughby at the entrance after passing that Cape, steer north-west fifteen miles, and you may lay to or run up north-east by east under snug sail until daylight. There are four rocks at the entrance of this passage, called the Pages; with a beating wind, you may pass on either side of them, but with a leading wind there is no necessity to approach them at all, as it is best to pass close round Cape Willoughby. Should the wind be so strong that a vessel could not carry sufficient canvas to fetch through the passage, it would be better for a stranger to stand out to the southward, rather than attempt to run into Encounter Bay. The anchorage in Encounter Bay is close round Granite Island, where a vessel may lay sheltered from all winds, save from south-east. There are several good anchorages where a vessel may run to, should she be caught in a gale of wind in Bass' Straits: one behind Wilson's Promontory, the corner inlet of Flinders; another in Western Port; two under King's Island, besides several on the Van Diemen's Land side, as Circular Head, George Town, Preservation Island, &c., the whole of which may be attained by a proper consideration of the chart; but it is always better, provided a vessel has sufficient sea room, to keep at sea than to run for an anchorage, as the sea will seldom hurt a good ship properly managed, and she is always ready to take advantage of any change that may take place.

"Should a gale of wind come on when a vessel is far to the westward of King's Island, she may run for Portland Bay. In going in, you pass to the eastward of the St. Lawrence Islands, and haul directly in for the land west-north-west; keep along the

south shore of the bay, at a distance of one mile, until you see the flag-staff at Mr. Henty's; bring that to bear west, and you will have six fathoms water about three-quarters of a mile from shore."

From Cape Jarvis the coast line tends to the north along the eastern shore of St. Vincent's Gulf. The scenery, as you turn the point, is extremely diversified. Dark cliffs and small sandy bays, with grassy slopes almost to the water's edge, succeed each other, backed by moderate hills, sparingly covered with trees, and broken into numerous valleys. Thus you pass Yankelilla, Rapid Bay, and Aldingis; but from Brighton the shore becomes low and sandy, and is backed by sand hummocks, that conceal the nearer country from the view, and enable you to see the tops of the Mount Lofty Range at a distance of from eleven to twelve miles.

Port Adelaide, a bar harbour, is about nine miles from Glenelg, and situate on the eastern bank of a large creek, penetrating the mangrove swamp by which the shore of the Gulf is thereabouts fringed. This creek is from ten to eleven miles in length. Its course for about two miles after you cross the bar is nearly east and west, but at that distance it turns to the south, and runs parallel to the coast; and there is an advantage in the direction it thus takes, that would not be apparent to the reader unless explained. It is, that, as the land breeze blows off the shore in the evening, and the sea breeze sets in

in the morning vessels can leave the harbour, or run up to it as they are inward or outward bound.

The landing-place of the early settlers was too high up the creek, and was not only the cause of great inconvenience to the shipping, but of severe loss in stores and baggage to the settlers; but at the close of the year 1839, Mr. McLaren, the then manager of the South Australian Company commenced and finished a road across the swamp to a section of land belonging to his employers, that was situated much lower down the creek, and on which the present Port now stands. The road, which is two miles in length, cost the Company £12,000. It has, however, been transferred to the local Government, in exchange for 12,000 acres of land, that were considered equivalent to the sum it cost.

The removal of the Port to this place was undoubtedly a great public benefit; and whatever perspective advantages might have influenced Mr. McLaren on the occasion, he merited all due praise for having undertaken such a work at a time when the Government itself was unable to do so. Both the wharf and the warehouse belonging to the Company are very creditable buildings, as is the Custom House and the line of sheds erected by the Government; but the wharf attached to them is defective, and liable to injury, from the chafing of the tide between the piers, which are not placed so as to prevent its action. Mr. Phillips' iron store is also one of a substantial description; but there

was not, when I left the province, another building of any material value at the Port. Numerous wooden houses existed in the shape of inns, stables, etc.; but the best of these were unfortunately burnt down by a fire a few days before I embarked for Europe. Whether it is that a misgiving on the minds of the public as to the permanency of the Port has been the cause of, and prevented the erection of more substantial and better houses at Port Adelaide, it is difficult to say; but any one might have foreseen, that as the colony progressed, and its commerce increased, the Port would necessarily have to be moved to some part of the creek where there was deeper and broader water, for the convenience of the shipping. I felt assured, indeed, that the removal of the Port would take place sooner than was generally supposed. The following extract from the South Australian Gazette of the 4th of December last, will prove that I judged truly:—

"NEW ROAD TO THE NORTH ARM.—This road was commenced last Tuesday week; and at the rate at which the work is progressing, will be completed (except as regards the subsequent metalling and ballasting) within four months from the present time. The line adopted is the one which was proposed by Mr. Lindsay in 1840, as requiring less outlay in the original construction than either of the other lines proposed. Taking Adelaide as the starting point, the course will be either along the present Port Road between Hindmarsh and Bowden as far as section No. 407, thence along the cross track between that section and section No. 419 (preliminary), as far as the south-

east corner of Mr. Mildred's section, No. 421; then in a straight line through the last named section and Mr. Gilles's, No. 2072, after leaving which it passes through an opening in the sand-hills, and then winds along the highest ground between the creeks, leaving the South Australian Company's road about a mile on the left, till it joins the main road or street running through section G. at the North Arm; or through North Adelaide and along the road at the back of Bowden, parallel with the main Port Road as far as Mr. Torrens' residence, to the south-east corner of Mr. Mildred's section, thence through that section as before. The soil of the so-termed swamp, or rather marsh, is of the most favourable description for embanking and draining operations, consisting at the part of the line where the work has been commenced, of a good loam for the first spit, and then clay to the depth of eighteen inches or two feet, resting upon a stratum composed for the most part of shells of numberless shapes and sizes, which extends to the bottoms of the drains (four feet), being the level of high water at spring tides, and at about the same above the low-water level. The shelly stratum continues below the bottoms of the drains to an uncertain depth. From the commencement of the "Swamp" to the Great Square or public reserve at the junction of the North Arm with the main channel of the Creek, the distance along the line of road is 4800 yards, or nearly two miles and three-quarters. The breadth of the road between the ditches will be 114 feet, or between three and four times the breadth of the Company's road."

If there is anything more justly a subject of congratulation to the Province than another, it is the commencement of the work thus notified. The road is now, in all probability, finished, and that part of the creek rendered available where these permanent improvements may be made, without

the fear of any future change; and when the shores of the North Arm shall be lined by wharfs, and the more elevated portions of Torrens' Island shall be covered with houses, few harbours will be able to boast of more picturesque beauty. There was something dreary in sailing up the creek with its dense and dark mangroves on either side, and no other object visible beyond them save the distant mountains; but the approach to the new Port will not fail to excite those pleasurable feelings in the heart of the stranger which give a colouring to every other object.

The removal of the port to the proposed locality will bring it within three miles of the bar, and will be of incalculable advantage to the shipping, since there will no longer be any delay in their putting to sea. The following letter, addressed by Captain Lipson, the Harbour-master, to the Colonial Secretary, in reference to the improvements that have been effected at the bar, will best explain its present state, and the description of vessels it will admit into the Port.

"Port, 6th July, 1847.

"SIR,—In answer to your letter of this day's date, requesting that I would report to you, for the information of the Legislative Council, what beneficial effects have been produced by the use of the mud barge in deepening the bar at the entrance of Port Adelaide, since the commencement of its operation, in the year 1845, up to the present date, also what additional depth of water, if any, has been obtained by the work alluded to.

"I have the honour to state, that at the commencement of the colony, her Majesty's storeship 'Buffalo' was brought out by the then governor, Captain Hindmarsh, to be detained here nine months for the protection and convenience of the colonists. It was, therefore, much wished to have her inside the bar; but after attending and carefully watching successive spring-tides, it was given up as impracticable, she drawing fifteen feet. The Governor then appointed a board to examine the bar, consisting of the masters of the 'Buffalo,' 'John Renwick,' and another, who, in their report, stated as their opinion, that no vessel above 300 tons ought to be brought into the harbour; however, last week two vessels exceeding 600 tons have been brought up to the wharf. But the most beneficial effect is now felt from a ship being able to cross the outer bar so much sooner on the tide than before, thereby having sufficient time to take her round the bar, and, if moderate, to beat up and anchor at the North Arm the same tide. Ships may now be brought in on the springs in winter, drawing seventeen or eighteen feet, as the time of high water is in the day, and the wind generally fair to beat in, but not so in going out, from the difficulty of reaching the bar at the time required, and the tide leaving so quickly after the ebb is made great care is required; and I find it unsafe to allow any vessel to load deeper than 15 or 16·6 inches at most. With a tug, there would be less difficulty and danger in loading to 18 feet than there now is to 15.

"There is now three feet more water on the bar than there was previous to its being deepened, and if the work be continued next summer, to enlarge a cut which has been made, there will be five feet.

"I have the honour to be, Sir, your obedient servant,

"THOMAS LIPSON, Harbour Master.

"The Honourable Colonial Secretary."

It is not clear to me, however, that the admission of larger class shipping into the Port will be of any great advantage. I am led to believe that ships of

smaller tonnage than those drawing 16 to 17 feet, have been found to be most convenient for the ordinary purposes of commerce. However, it is evident, that if Captain Lipson continues the same praiseworthy exertions he has hitherto used, he will deepen the bar for vessels of any tonnage. Under existing circumstances, it may be as well to state that any ship arriving off the bar when there is not sufficient water on it for them to enter the port, will find good anchorage all round the light-ship, particularly a little to the westward of it. The whole Gulf, indeed, from this point, may be considered as a safe and extensive roadstead. As regards Port Adelaide itself, I cannot imagine a securer or a more convenient harbour. Without having any broad expanse of water, it is of sufficient width for vessels to lie there in perfect safety, whether as regards the wind or the anchorage.

The head of St. Vincent's Gulf is in latitude 34½°. Between that point and Port Adelaide, the shore is either lined by mangroves, or is low and sandy. There are, nevertheless, several inlets similar to, but much smaller than Port Adelaide, and other commodious anchorages for small craft along it. The principal of these is the inlet connected with the Gawler, of which I shall hereafter speak. York Peninsula forms the western shore of St. Vincent's Gulf, and separates it from that of Spencer. It is a long, low tongue of land—Cape Spencer, its southern extremity, being in 35° 17′,

and in long. 136° 52′. Though embracing a considerable area, the character of the Peninsula is unfavourable to the growth of nutritive herbage; the surface soil is a species of calcareous limestone, the rock formation of a tertiary description, although, at the lower extremity, granite and trap rock are known to exist. The surface of the country is undulating, covered in many places by scrub, and the trees being very short-lived, the whole is matted with dead timber, and difficult of access. A deficiency of water renders York Peninsula still more unfavourable for location; nevertheless, several sections of land have been purchased on that part which is immediately opposite to Port Adelaide, and it is said that indications of copper have been found there, a fact I should be inclined to doubt. In 1840, a company applied for a special survey on the shores of the Peninsula to the southward of Point Pearce, and gave the name of Victoria Harbour to the locality; but the survey was subsequently abandoned in consequence of the unfavourable character of the interior, from the great deficiency of water.

If we except the results of a survey made by the late Lieut.-Governor, Colonel Robe, of the upper part of Spencer's Gulf, during which, as is the case in the same part of the neighbouring gulf, his Excellency found convenient bays and inlets, but little is known of the eastern shore of that splendid gulf, beyond this point. Double the size of St. Vincent's

Gulf, it runs up to the 32½ parallel, and was at one time or other very probably connected with Lake Torrens. The higher part is backed by a range of mountains, the more prominent of which were named by Captain Flinders—Mount Remarkable, Mount Browne, and Mount Arden. On the first of these there were so many indications of copper, that a special survey of 20,000 acres was taken by a company for the purpose of working any lodes that might be found. The country round about Mount Remarkable is stated to be exceedingly picturesque and good; so that independently of any value it may possess as a mineral survey, it possesses both agricultural and pastoral advantages. After passing the Mount Remarkable Range, however, the country falls off in character. A dreary region extends round the head of the Gulf, and, it is to be feared, to a much greater distance. The description given by Mr. Eyre, and the reports of those who have endeavoured to penetrate to the westward of Lake Torrens both agree as to the sterile and inhospitable character of the remote interior. Little improvement takes place in it on following down the western shore of the Gulf. Several individuals, indeed, have perished in endeavouring to take stock round the head of the Gulf to Port Lincoln, either from the want of water, or from having wandered and lost themselves amidst the low brush with which it is covered. The whole of the country, indeed, lying to the westward of Spencer's Gulf is, as far as I have

been able to ascertain, of very inferior description. There are, it is true, isolated patches of good land, and a limited run for sheep, but the character of the country corresponds but little with the noble feature for which Spencer's Gulf is so justly celebrated. In reference to this magnificent basin, Captain Lee, from whom I have already quoted, observes—

"The harbour of Port Lincoln, including Boston Bay, is situated near the extremity of the Peninsula, which forms the west side of Spencer's Gulf in the Province of South Australia, and from its great extent, and the number of its safe anchorages, is capable of containing the largest fleets, and as a depôt, is not, perhaps, to be surpassed by any port in the world. Vessels from England, bound to Port Lincoln, should run along in about 35° 20′ south latitude, until they arrive in 135° 20′ east longitude, when they may haul up to the north-east, and make Cape Catastrophe. After arriving near the Cape, they may then shape a course to pass between it and Williams' Island. There are strong tide ripplings here, which, to a stranger, would present the appearance of reefs; but as the channel is perfectly clear, no danger need be apprehended. Having passed through the channel, should night be approaching, it would be advisable for a stranger to keep the main land aboard, leaving another Island (Smith's Island), on the starboard hand, and bring up in Memory Cove, a perfectly safe anchorage, in about five fathoms, and wait for day-light. Proceeding then along shore to the northward, he will arrive at Taylor's Island, which may be passed on either side; after which he may run along shore at a distance of one mile, until he arrives at Cape Donnington. This Cape may be known by its having a small islet laying about half a mile from the point. Rounding this islet, at half a cable's length, in about nine-fathoms' water, and hauling to the westward, he will open the magnificent harbour of Port Lincoln, stretching to the

south-west as far as the eye can reach. Should the wind be fresh from the south or south-west, it would be better if bound to Boston Bay, to beat up between Boston Island and the promontory of Cape Donnington. The shores are steep on both sides, so that a vessel may stand close in on either tack. Should the wind be so strong as to prevent a vessel beating in, she may run up under easy sail to a bay on the north-east end of Boston Island, and bring up in seven fathoms opposite a white sandy beach, three-quarters of a mile off shore. There is also excellent anchorage at the entrance to Spalding Cove, bringing the western point of the promontory of Cape Donnington to bear north by east, and the northernmost of Bicker's Island west by north, you will lay in seven fathoms, muddy bottom. Having arrived at Bicker's Island and bound for Boston Bay, stand directly over to the westward, passing the south end of Boston Island, until you open the bay, when you may choose a berth according to circumstances, and in any depth from ten to four fathoms.

"The positions of the various points and islands are so correctly laid down on Flinders' chart, that the skilful navigator will at once know his exact situation by cross-bearings.

"The anchorage in Port Lincoln itself is not so safe as in Boston Bay, and more difficult of access, especially in the winter months, when the winds are strong from the south-west, and in the summer months it is quite open to the north-east. In working up, a vessel may stand close in to the eastern shore, and to within half a mile of the western, but should not attempt to pass between the two Bicker's Islands, as there is a reef running from the northernmost island nearly across to the other.

"Vessels from Adelaide, bound to Boston Bay, after arriving at Althorpe's Island, should shape a course so as to pass between the Gambier Islands and Thistle's Islands. There is a small island bearing west five miles from the south end of Wedge Island, the largest of the Gambier group, which is not laid down in Flinders, which should be left on the starboard hand. Bring

the highest part of Thistle's Island to bear west, distant about six miles, and in twenty-two fathoms water, and a north-west half-west course will carry you through midway between the Horse-shoe Reef and the rocks which lay off the north-west end of Thistle's Island, and in the direct track for Cape Donnington. The passage between the reefs is about three miles wide, and ought not to be attempted in the night, as the tides set directly across the channel. There is very good anchorage on the north-east side of Thistle's Island, well sheltered three-fourths of the year. Bring the rocks before-mentioned to bear north-north-west, and two remarkable sand hills south by west, and you will lay in five fathoms, one mile off shore—north end Thistle's Island west by south. Should the wind be so strong from south-west or west-south-west, so that a vessel from the eastward cannot carry sail sufficient to fetch up to Cape Donnington, or under Thistle's Island, it would be advisable to bear up for Hardwick Bay; passing to the eastward of Wedge Island, come no nearer to the shore of York's Peninsula than two miles, until you arrive within five miles of Corny Point, when you may haul in for that point, rounding it a distance of half a mile, you may bring up in five fathoms, one mile from shore: Corny Point bearing west. Vessels from Sydney, bound to Port Lincoln, may pass through Backstairs Passage, and proceed according to the foregoing directions, or by keeping well to the southward, pass outside Kangaroo Island, until they arrive in longitude 136° E., when they may shape a course either to pass between Gambier's and Thistle's Islands, or else for Cape Catastrophe, taking care to give the Neptune Islands a wide berth, and then proceed according to either of the foregoing directions."

To this extract which refers exclusively to the navigation of Spencer's Gulf, I may add, that Boston Island lies immediately opposite to the bay, and that there are two channels of entrance round

the island, through which vessels of the largest size can pass with any wind or in any weather, for the harbour is so sheltered by the headlands forming the entrance, that the swell of the sea is broken before reaching it.

The high ground which almost surrounds Boston Bay, protects it in like manner from the winds, more especially those coming from the west and south-west, in which directions some of the hills attain the height of several hundred feet.

The depth of water in the central parts of the Bay is about twelve fathoms, varying from five to seven at the distance of less than a quarter of a mile from the shore all round; whilst at Boston Point, where the town of Boston has been laid out, there is a depth of two, three, and four fathoms, at about a boat's length from the land. The bottom consists in some places of mud, in others of shells and sand, so that the anchorage is safe.

The tide sometimes rises seven feet, but that is considered a high tide, the ordinary rise not being more than five; this depends, however, on the outward state of the Gulf, and the quarter from which the wind may happen to be blowing.

In the summer season, the land and sea breezes blow very regularly, for three weeks or a month at a time. They are then succeeded by strong winds from the south-west, that last for three or four days, and are sometimes very violent. In winter these

interruptions to the usual calm state of the weather are more frequent, but the harbour is little influenced by them; taking it altogether, indeed, as a harbour, it is unquestionably as safe and commodious as any in the world, and it is deeply to be regretted, that its position, of which I shall have to speak, and the nature of the country behind it, should be any drawbacks to its becoming one of the most important ports on the Australian Continent.

In the vicinity of Port Lincoln, the land is of very varied character. To the west and south-west it is poor and scrubby, covered with a diminutive growth of she oak (Casuarinæ) or dwarf gum-trees (Eucalypti), or it is wholly destitute of timber; but along the line of hills, stretching to the north, at a short distance from the shores of the Gulf, there is an improvement in the soil. The pasture is well adapted for sheep, and there are isolated valleys in which the soil is very good and fit for cultivation; but this kind of country only occupies a narrow strip of about ten miles, and although tracts of available land have been found in the interior, and it has been ascertained that water is not deficient, it must still, I fear, be considered as a very inferior district. As regards Port Lincoln itself, the inhabitants procure their water from a spring, on the sea-shore, which is covered by every tide. This spring does not appear to undergo any sensible diminution, even in the height of summer, and is stated to be

so copious, that it would yield a most abundant supply.

It has been reported, that strong indications of the presence of copper have been found in the neighbourhood of Port Lincoln, and this report may be correct. The discovery of mines there, would at once raise the harbour to importance, and make it the resort of shipping. Mines might be worked at Port Lincoln with more advantage perhaps to the province, than where they have been already in operation, for it admits of great doubt whether the benefit from the distribution of wealth from mining speculations, makes up for the interference of such speculations with other branches of industry. Unless some local advantage, of the kind to which I have alluded, should give this noble harbour an impulse however, it would appear to have but little prospect of becoming a place of importance, for although Spencer's Gulf penetrates so deep into the northern interior, the country is altogether unprofitable, and although there is depth of water sufficient for the largest ships to the very head of the Gulf, yet, as far as our present knowledge extends, it is not probable that it will be the outlet of any export produce. It is to be remembered, however, that if there should be minerals in any abundance found on the Mount Remarkable special survey—the ore must necessarily be shipped, from some one of the little harbours examined by the Lieutenant-Governor during his survey of that part of Spencer's Gulf—

In such case, Port Lincoln will be brought more immediately into notice.

From Port Lincoln, the shore of the Gulf still trends to the south, as far as Cape Catastrophe, in lat. 35°. It then turns with an irregular outline to the N.N.W., and several bays succeed each other. The first of these is Sleaford Bay, sometimes occupied as a whaling station, but of no other importance. Coffin's Bay, almost immediately behind Port Lincoln, is rather an inlet than a bay, and runs so far into the interior, as to approach Boston Bay, to within 16 miles. Coffin's Bay is exceedingly wide, and objectionable for many reasons, but as it is a whaling station of some importance, and visited by numerous whalers, I shall quote Captain Lee's remarks upon it, and give his directions for going to it.

"This is a very large bay, perfectly secure from all winds, save from north to east, but unfortunately a great portion of it is rendered useless by the shallowness of the water. The best anchorage is with Point Sir Isaac, bearing north-north-west, about one mile and a half from the western shore in four or five fathoms. In working in with a southerly wind, you may stand to the eastward until you bring the above point to bear south-west by west, after which it would be better to make short tacks along the western shore. You must be careful to keep the lead going, as the water shoals from five and four fathoms to one and a half at a single cast. This bay seems well adapted for a fishing station. The inner part of the bay extends a long way back into the country, at least thirty miles from Point Sir Isaac, and contains two or three secure harbours and excellent anchorages, a new chart of which is in course of publication.

"Vessels from Sydney bound to Coffin's Bay, should proceed as if bound to Port Lincoln until arrived off the Neptune Islands, when they should steer for Perforated Island, having passed which, steer for Point Whidbey, giving it a berth of at least two miles. In running along shore from Point Whidbey to Point Sir Isaac, come no nearer the shore than two miles, until you get the latter point to bear east-south-east as the rocks lay a long way from the shore. Having arrived at Point Sir Isaac proceed as directed before.

"Althorp's Island is of moderate height, situated at the entrance of Investigator's Straits; may be passed close to on the south side. Several other islands and reefs lay between it and York's Peninsula, rendering that passage highly dangerous.

"Wedge Island, one of the Gambier Group, may easily be known by its wedge-like form, sloping from south-east to north-west. There are two peaked rocks off the south-east end, one mile off shore, also a small island, bearing west five miles from the south end, not laid down in Flinders' charts.

"Thistle's Island, is low at each end but high in the middle, it lays in a north-west and south-east direction. There are some rocks which lay off the northern point about three miles, which being connected with the island itself, forms a good anchorage behind, secure from all but north and east winds, another good place for a fishing party. See Port Lincoln directions.

"Neptune's Islands are low, three in number, and having numerous rocks and reefs amongst them; ought not to be approached too closely, there being generally a strong swell from the south-west, the sea breaks over them with great violence.

"Liguanea Island is of moderate elevation, and may be passed on the south side at a distance of two miles.

"Perforated Island, as its name imports, may be known by its having a hole through it near the north end and close to the top of the island, it may be passed close on any side. *Four Hummocks* may easily be known from their appearance answering to their name.

"Greenly Island, this is a peaked island, rather high, and may

be seen ten leagues off. There is another island laying south and by west, seven miles, not laid down in Flinders', and two other reefs between them, rendering the passage unsafe.

"Proceeding along shore to the northward you will fall in with Flinders' Island. This is a large island, covered with wood, with plenty of fresh water, possessing a secure anchorage on the northern side, and is admirably adapted for a whaling station. In going on from the southward, keep outside the top Gall's Island, and steer directly for the north-east point, rounding which, you will open the anchorage, and as there is no danger, but may be seen, you may choose a berth according to circumstances.

"Waldegrave's Island, close to the main land, has good anchorage on the northern side, secure from south-east and south-west winds.

"The shore, from Waldegrave's Island to Point Weyland is low and sandy. There is a large body of water running in a direction parallel to the coast, all the way from Point Weyland to the northward of Cape Radstock, having an entrance at both points. It appears as if the action of the sea from the south-west, had broken through the coast range and filled up the valley immediately behind. Indeed the whole coast from Kangaroo Island to as far to the north-west as has been visited by the author, bears evident marks of the encroachments of the sea. In some places marked down as small islands in Flinders', there are now only reefs, other places which were formerly points of land, are transformed to islands."

In the year 1840, I was instructed by the then Governor of South Australia, to send an officer of the survey in a small vessel, with a supply of provisions for Mr. Eyre, who was at that time supposed to have reached Fowler's Bay, during the first of his expeditions; I accordingly selected Mr. John Cannan, in whose zeal and ability I had every

confidence. This officer left Port Adelaide the 9th September, 1840, with instructions from me, in addition to the immediate object he had in view, to survey such parts of the coast along which he was about to sail, as had only been partially examined by Captain Flinders. Unfortunately it was during the winter time, and the task I had assigned him would, I knew, be attended with considerable risk in beating along that dangerous and stormy coast. Mr. Cannan arrived at Streaky Bay on the 27th September, but was disappointed in finding Mr. Eyre, or a letter he had buried for him under Cape Bauer, he therefore proceeded to the examination of the coast, as I had instructed him to do; and the following extract from his report will not only enable the reader to judge how he performed that service, but will give him the best information as to the character of the several bays and inlets he examined.

"I send you a chart of Streaky, Smoky, and Denial Bays, by which you will be better able to judge of the capabilities of the harbours they contain, than by any description I can give. I may mention however, that the entrance to Smoky Bay, between the shoals of St. Peter's and Eyre's Islands, is dangerous, for with any swell on the sea breaks right across. In the inlet, on the west side of Denial Bay, there is a salt water creek with two fathoms of water; and adjoining some high sand-hills, among which we found fresh water by digging. Our vessel being the first, I believe, that ever entered Smoky Bay, on finding an island at its southern end, I named it after that enterprising traveller Mr. Eyre. I also found an island and reef not laid down by Flinders, to the southern of St. Francis Islands. There is

also an island 10 miles west of the rocky group of Whidbey's Isles, and about 12 miles from Greenly's Isles. The captain of a French whaler also informed me, that a sunken rock lays 6 miles N.W., off Point Sir Isaac, on which the sea breaks in heavy weather.

"The desert country surrounding these bays has been sufficiently explored, and so correctly described by Mr. Eyre, as not to require to be mentioned. The absence of any rise that can be called a hill, from Mount Greenly to Mount Barren, the eternal limestone cliffs, the scarcity of water and grass, surely prove this coast to be the most miserable in the world, whilst the harbours are as good as could be wished for, and it must be owing to the deficiency of charts, that whalers do not frequent these bays, for there are generally two or three French or American vessels in the neighbourhood during the season. I found no bones or carcases of whales in Streaky, Denial, or Smoky Bays, but the shores of Fowler's and Coffin's Bays, I found strewed with their remains. In the latter place, Captain Rossiter, of the Mississippi shewed me his chart, and told me there was no shelter for a vessel on this side of the Bight, except at Fowler's Bay, and that was indifferent. The great extent of smooth water at Denial and Streaky Bays, and a well of water on St. Peter's, dug by a sealer who lived on it many months, afford more advantages for fishing, and more especially to a shore party, than are to be found any where else in the Province.

"From the general flatness of the country, it may be presumed that its character does not alter for a great distance inland. I observed nothing in the formation of the island, differing from the mainland, and I may mention that the rocks of the isles of St. Francis presented the same appearance as the Murray Cliffs."

It will appear from the above, that Mr. Cannan did not proceed farther to the westward than Fowler's Bay, and that he did not therefore prolong his survey to the western limits of the Colony, by a

distance of about five leagues, since the 132° meridian falls on that coast a little to the westward of Cape Adieu, and between 12 and 15 leagues from the bottom of the Great Australian Bight.

Although some of the bays and harbours I have described in running along its coast, are not so good as might be desired, yet it is evident that, as a maritime country, South Australia is particularly favoured, not only in having anchorage of the safest description, but also in possessing two or three known harbours, capable of containing ships in any number or any size, and as safe and capacious as any in the world. Looking indeed at Port Adelaide, one cannot but admire its appropriate and convenient position. Had such a harbour not existed there, the produce of that fertile portion of the Province would hardly have been available to the inhabitants in the shape of exports, so difficult would it have been to have found another harbour of equal security, or of equal size, for the commercial wants of the settlers. Added to this, it has the double advantage of being close to the capital, being so easy of access, and in so central a position, as to be able to communicate with the neighbouring colonies with the greatest ease.

It will be remembered that I stated in the former part of my work, that the remarkable wall forming the Great Australian Bight, was thrown up simultaneously with the great fossil bed of the Murray.

As the principal object of the Expedition into Central Australia was to ascertain the past and

present structure of the Continent, I have been led to allude to the subject again, in consequence of two or three remarks in Mr. Cannan's letter, which has been quoted above, bearing strongly upon it, and corroborative of the hypothesis I have entertained as proving a striking uniformity in the rock formation of those two localities. To those remarks I would beg to call the attention of my readers. They will be found at the commencement and termination of the last paragraph.

CHAPTER II.

PLAINS OF ADELAIDE—BRIDGES OVER THE TORRENS—SITE OF ADELAIDE—GOVERNMENT HOUSE BUILDINGS AND CHURCHES—SCHOOLS—POLICE—ROADS—THE GAWLER—BAROSSA RANGE—THE MURRAY BELT—MOORUNDI—NATIVES ON THE MURRAY—DISTANT STOCK STATIONS—MOUNT GAMBIER DISTRICT—ITS RICHNESS—ASCENT TO MOUNT LOFTY—MOUNT BARKER DISTRICT—SCENE IN HINDMARSH VALLEY—PROPORTION OF SOIL IN THE PROVINCE—PASTORAL AND AGRICULTURAL—PORT LINCOLN—CLIMATE OF SOUTH AUSTRALIA—RANGE OF THE THERMOMETER—SALUBRITY.

HAVING, in the preceding chapter, run along the coast of South Australia, and noticed such parts as have been sufficiently examined to justify our observations, it remains for me to give an account of its interior features, of its climate, soil, mineral, and other sources of wealth, and lastly of its fitness as a colony for the peculiar habits of an English population.

The city of Adelaide, the capital of South Australia, stands on the eastern shore of St. Vincent's Gulf, and is about six miles from the coast. Any one landing either at the old or new port, and proceeding to the capital for the first time, would perhaps be disappointed at the description of country through which he would pass. It consists indeed of extensive level plains, over the eastern extremity of which the Mount Lofty Range is visible. They are bounded southwards by a line of trees, marking the

course of the river Torrens across them, but extend northwards for many miles without any visible termination. Their monotony however, is, at the present date, in some measure broken by belts of wood, and the numerous cottages that have been built upon them, with their adjoining corn-fields, have changed their aspect, and removed the appearance of loneliness which they first exhibited. Still neither the gloomy swamp over which the stranger has in the first instance to travel, on landing at the Port—or the character of the plains themselves, are calculated to raise his anticipations, as to the beauty or fertility of the interior. The first town through which he will pass after leaving the Port, is Albert Town, which has been laid out on the first available ground near the swamp. When I left the colony in May last, several tolerable buildings had been erected in Albert Town, but it was nevertheless a wretched looking and straggling place, and will never perhaps advance beyond its present state.

On his nearer approach to the capital the traveller will pass between the villages of Boden and Hindmarsh, in both of which he will observe numerous kilns of bricks. He will then enter on the Park Lands, by which North and South Adelaide are separated from each other. On this land the scene at once changes, and he will find himself riding through an open forest, shading rich, alluvial, and grassy flats; and, strictly speaking, will then be traversing the Valley of the Torrens. In May, 1847,

there were four bridges over that little river. The Company's bridge a little above the city. The Frome bridge, a light wooden structure, built by the sappers and miners, under the direction of Captain Frome, the Surveyor-General, after whom it was called. The City bridge, constructed of stone, but then incomplete, and a rude wooden bridge between Adelaide and Hindmarsh, erected by an innkeeper, with a view of drawing the traffic from the Port past his door. The City bridge, which was undertaken by contract, promised to grace the approach to Adelaide, and was intended to be the principal bridge to connect the north and south portions of the city, as well as to form the chief line to the Port and to the north. The occurrence of an unusual flood, however, in the latter part of the year 1847 deprived the good citizens of Adelaide of these necessary means of communication with the country on the right bank of the Torrens, by the injury it did to them. The Company's bridge suffered less than any other, but was so shaken as to be impassable for several days. Aware, as I am, of the general character of the Australian streams, and seeing no reason why the Torrens should differ from others, taking into consideration, too, the reports of the natives as to the height to which the river had been known to rise in former years, and the fact that no rain had fallen since the establishment of the Colony to cause any very great or sudden flood, it appeared to me, that the place

selected for the City bridge was too low. Ordinary floods so completely change the channel of the river, and make such devastation in its bed, that it is hardly to be recognised when the water subsides, so that unless the banks are high, and the soil of which they may be composed stiff enough to resist the impetuosity of the stream, I fear no bridge across the Torrens will be permanently safe.

The position and ground chosen by the first Surveyor-General of South Australia, as the site of its future capital is a remarkable instance of the quick intelligence of that officer. For although he had but little time to make his selection, a more intimate knowledge of the coast has proved that no more eligible point could have been found. Fault has, I am aware, been found with Colonel Light in this matter, but without just grounds, I think, for in no other locality could the same quantity of water have been found, or the same facility offered for the construction of those reservoirs and other works so necessary to the health and comfort of a large metropolis. A principal objection raised to the situation of Adelaide is its distance from the Port, but that we must remember is a disadvantage common to many other large and mercantile cities. The Surveyor-General seems to have been fully aware of the responsible duty that devolved upon him, and to have acted with great judgment. Port Lincoln, indeed, is a splendid harbour, one with which Port Adelaide, as far as size goes, cannot be

compared, but having said this nothing farther can be advanced in its favour, for it is not only deficient in its supply of water, but the contiguous country is far from rich, whereas Adelaide is backed by one of undoubted fertility.

Established where it is, the city of Adelaide stands on the summit of the first elevated ground, between the coast and the mountain ranges.

It is separated, as the reader will have learnt, by the valley of the Torrens, and occupies the northern and southern slopes and brows of the hills on either side. The view to the westward from the more elevated parts of the city commands the whole of the plains of Adelaide, and St. Vincent's Gulf; to the eastward, it extends over the rich and dark wooded valley of the river, the lighter wooded country at the base of the Mount Lofty Range, and the peaks and elevations of that beautiful mountain chain.

South Adelaide is on flat ground and twice the size of the northern part of the town. It has also been more extensively built upon, and is the established commercial division of the city. The Government House and all the public buildings and offices are in South Adelaide, and the streets in the vicinity of the North Terrace, have assumed a regularity and uniformity greater than any street in North Adelaide. Hindley and Rundle streets, indeed, would do no discredit to any secondary town in England. Every shop and store that is now built is fo a substantial and ornamental character, and

those general improvements are being made which are the best proofs of increasing prosperity and opulence.

There is scarcely any article of European produce that cannot be obtained in Adelaide, at a very little advance on home prices, nor is it necessary, or indeed advisable that Emigrants should overload themselves in going out to any of the Australian Colonies. Experience, the best monitor, leads me to give this advice, which, however, I am bound to say, I did not adopt when I went out to New South Wales; but the consequence was, that I purchased a great many things with which I could have dispensed, and that I should have found the money they cost much more useful than they proved.

King William Street divides Hindley from Rundle Street, and is immediately opposite to the gate of Government House, which is built on a portion of the Park lands, and is like a country gentleman's house in England. It stands in an enclosure of about eight or ten acres; the grounds are neatly kept, and there is a shrubbery rapidly growing up around the House.

The Public Offices are at the corner of King William Street and Victoria Square, facing into the latter. The building is somewhat low, but a creditable edifice, to appearance at all events, although not large enough for the wants of the public service.

I am not aware that there is any other public building worthy of particular notice, if I except the

gaol, which is a substantial erection occupying the north-west angle of the Park land, but is too low in its situation to be seen to advantage at any distance. Like Government House, it was built with a view to future addition, but fortunately for the colony, Government House is the first which seems to call for completion.

The number of Episcopalian Churches in Adelaide is limited to two, Trinity Church and St. John's. The former was originally built of wood, and may be said to be coeval with the colony itself. It has of late however been wholly built of stone, and under

the active and praiseworthy exertions of Mr. Farrell, the colonial chaplain, an excellent and commodious school-room has been attached to it.

Trinity Church stands on the North Terrace, and is a prominent object as you ascend from the Park lands. St. John's is situated on the East Terrace at a greater distance, but it has a commanding view of the Mount Lofty Range, and the intervening plains. Perhaps considering that the city has not extended much in the direction of East Terrace, it may be a little too far for public convenience, but this is a question that admits of doubt. It is a neat and unostentatious brick building, at which the Rev. Mr. Woodcock performs service, whose exertions amongst the natives in the West Indies have stamped him both as a christian and a philanthropist. The two churches are calculated to hold about 1000 sittings, and the average attendance is about 900.

It may appear to the reader that the number of churches in Adelaide, where there is a population of between 8000 and 10,000 souls, is not sufficient, as is the case. Ere this however, a third church, to be called "Christ's Church," will have been erected in North Adelaide, where such a place of worship was much required. £500 had been subscribed for the purpose in December last, and it was confidently anticipated that the further contributions of the colonists would enable the committee to commence and finish it. The arrival of the Bishop on the 24th of the above month, of which accounts have been

received had given great satisfaction, and his Lordship was to begin his useful ministry on the following day (Christmas Day), by preaching at Trinity Church.

However few the Episcopalian churches in the capital of South Australia, we cannot accuse the Dissenters of a similar want of places of public worship, of which there are 9, the whole number throughout the province being 31; whilst the number of churches is 6. The Congregational chapels are calculated to accomodate 4700 communicants, the average attendance being about 2300, and are, generally speaking, good looking and ornamental buildings, and do no discredit to those who superintended their erection, and approved the places.

There is a Roman Catholic Bishop of South Australia, but he had, during the latter period of my residence in the province, been absent in Europe. The Catholic Church stands on the West Terrace, and is, perhaps, in one of the most healthy situations that could have been chosen. There is an excellent school attached to the church, which is equally open to all denominations of Christians, and is, I have understood, more numerously attended than any other in the capital. The total number of Sunday-schools in the province, in 1841, was 26, at which 617 boys and 582 girls attended. The average number of Sunday and other schools in 1845 was 55, at which 780 males and 670 female children attended.

In the year 1846, when His Excellency Colonel

Robe laid the estimates on the table of the Legislative Council, its attention was drawn to the state of education and religion in the province, and after a long discussion on the subject, a grant of 2*s*. per head was voted to the different sects in aid of religion and education. It was left to the ministers of the Protestant Church, and to the proper officers of the other persuasions to appropriate the sum received by each, according to the last census, as they deemed best, for the promotion of one or the other of the above purposes, with the sole condition that they should render an account yearly to the Council of the manner in which the several sums had been appropriated. Yet this provision, which without interfering in the slightest degree with any religious sect, gave to the heads of each the greater power of doing good, caused very great dissatisfaction. All I can say is, that it was an instance of liberal and enlightened views of government, of which the Council of South Australia in having set the example ought to be proud.

The Legislative Council of New South Wales has since, I believe, followed its example, and I sincerely trust the good that is anticipated, will result from this proof on the part of both Governments to raise the moral and social character of the people.

In addition to the schools already noticed, there is a school for the natives on the Park lands. At this school there were in 1847, thirty-five boys and twenty-nine girls. The establishment being entirely

under the superintendence of the Government, is kept in the very best order; the apartments are neat and clean, the master is patient and indulgent, and if we could hope for any improvement in the moral and social habits of the aborigines, it would be under circumstances so promising, but as I propose, in another place, to make some observations on the natives generally, it may not be necessary for me to add to the above remarks at the present moment.

Of other public buildings not under the immediate controul of the Government, the Bank of South Australia is certainly the first. It stands on the North Terrace and is a prominent and pleasing object from whatever point of view it is seen. There are, however, several other very creditable buildings in different parts of the city.

Had the city of Adelaide been laid out in the first instance on a smaller plan, it would now have been a compact and well-built town, but unfortunately it was planned on too large a scale, and it will necessarily have a straggling appearance for many years to come.

North and South Adelaide are, as I have already stated, separated from each other by the valley of the Torrens, than which nothing can be prettier. Its grassy flats are shaded by beautiful and umbrageous trees, and the scenery is such as one could not have expected in an unimproved state. The valley of the Torrens is a portion of the Park lands which run round the city to the breadth of half a

mile. Nothing could have been more judicious than the appropriation of this open space for the amusement and convenience of the public, and for the establishment of those museums and institutions which tend so much to direct the taste, and promote the scientific improvement of a people.

Beyond the Park lands, the preliminary sections, of 134 acres each, extend to a certain distance—many of which have been laid out into smaller sections, and the city is surrounded by numerous villages, few of which add to its appearance. This certainly may be said of Thebarton, Hindmarsh, Boden, and several other villages, but those of Richmond, and Kensington, embosomed in trees, and picturesque in scenery, bear a strong resemblance to the quiet and secluded villages of England.

In Hindmarsh, Mr. Ridley, whose mechanical genius has been of such public utility, and whose enterprise is so well known, has established his steam flour-mill, which is the largest in the province. In addition to this, the South Australian Company has a steam-mill at the upper bridge; there are several of a smaller size in the city, and the total number of flour-mills in the Colony, including wind and water mills is twenty-two.

This general description of the capital of South Australia will perhaps suffice to shew its rapid growth during the eleven short years since the first wooden dwelling was erected upon its site.

It may be necessary for me to state that its peace

and order are preserved by a body of police, whose vigilance and activity are as creditable to them as their own good conduct and cleanliness of appearance; and whilst the returns of the supreme court, and the general unfrequency of crime, prove the moral character of the working classes generally, the fewness of convictions for crimes of deeper shade amongst that class of the population from whose habit of idleness and drinking we should naturally look for a greater amount of crime, as undoubtedly proves the vigilance of the police. From the return of convictions before Mr. Cooper the Judge, it is clear that the majority of those who have been brought before him are men who have already suffered for former breach of the laws, and who, having escaped from the neighbouring Colonies, have vainly endeavoured to break themselves of former evil habits. The eyes of the police are however so steadily kept on such men, that they have little chance of escaping detection if they commit themselves, and they consequently level their aim at those who encourage them in vice, and who, in reality, are little better than themselves in morals, as knowing that, in many instances, they will not dare to bring them to punishment.

There are five principal roads leading from Adelaide; three into the interior, and two to the coast. Of the three first, one leads to the north, through Gawler Town, one as the Great Eastern Road leads to Mount Barker and the Murray, and the third

running southwards, crosses the range to Encounter Bay. Of the roads leading to the coast, the one goes to the Port, the other to Glenelg. In endeavouring to give a description of the country, and enabling the reader to judge of it, I would propose to take him along each of these roads, and to point out the character and changes of the country on either side, for the one is peculiar and the others are diversified. My desire is to present such a view of the colony to the minds of my readers, as shall enable them to estimate its advantages and disadvantages. I would speak of both with equal impartiality and decision. The grounds of attachment I entertain for this colony rest not on any private stake I have in its pastoral or mineral interests, and I hope the reader will believe that my feelings towards it are such as would only lead me to speak as it really and truly should be spoken of. There is no country, however fair, that has not some drawback or other. There are no hopes, however promising, that may not be blighted; no prospects, however encouraging, that may not wither. Unfitness for the new field of enterprise on which a man may enter—unpropitious seasons, the designs of others, or unforeseen misfortunes; one or more of these may combine to bring about results very opposite from those we had anticipated. I would not therefore take upon myself the responsibility of giving advice, but enter upon a general description of the province of South Australia as a tourist, whose

curiosity had led him to make inquiries into the capabilities of the country through which he had travelled, and who could therefore speak to other matters, besides the description of landscape or the smoothness of a road.

If we take our departure from Adelaide by the great Northern Road, we shall have to travel 25 miles over the plains, keeping the Mount Lofty Range at greater and less distances on our right, the plains extending in varying breadth to the westward, ere we can pull up at Calton's Hotel in Gawler Town, where, nevertheless, we should find every necessary both for ourselves and our horses.

That township, the first and most promising on the Northern Road, is, as I have stated, 25 miles from Adelaide; and occupies the angle formed by the junction of the Little Para and the Gawler Rivers; the one coming from south-east, and the other from north-north-east; the traveller approaching from the south therefore, would have to cross the first of these little streams before he can enter the town.

Still, in its infancy, Gawler Town will eventually be a place of considerable importance. Through it all the traffic of the north must necessarily pass, and here, it appears to me, will be the great markets for the sale or purchase of stock. From its junction with the Little Para, the Gawler flows to the westward to the shores of St. Vincent's Gulf. It has extensive and well wooded flats of deep alluvial soil along its banks, flanked by the plains of Adelaide—

the river line of trees running across them, only with a broader belt of wood, just as the line of trees near Adelaide indicates the course of that river. If I except these features, and two or three open box-tree forests at no great distance from Albert Town, the plains are almost destitute of timber, and being very level, give an idea of extent they do not really possess, being succeeded by pine forests and low scrub to the north from Gawler Town.

The Gawler discharges itself into a deep channel or inlet, which, like the creek at Port Adelaide, has mangrove swamps on either side; still the inlet is capable of great improvement, and the anchorage at its mouth, so high up the gulf is safe, and if it were only for the shipment of goods, for tran-shipment at Port Adelaide, Port Gawler as it is called, would be of no mean utility, but it is probable that ships might take in cargo at once, in which case it would be to the interest of the northern settlers to establish a port there. Captain Allen and Mr. Ellis, two of the most independent settlers in the province, are the possessors of the land on both sides the Gawler, and I feel confident it is a property that will greatly increase in value. The alluvial flats along this little stream, are richer and more extensive than those of the Torrens, and they seem to me to be calculated for the production of many things that would be less successfully cultivated in any other part of the province. Apart, however, from any advantages Gawler Town may

derive from the facilities of water communication, it will necessarily be in direct communication with Port Adelaide, as soon as a road is made between them. At present the drays conveying the ore and other exports are obliged to keep the great northern line to within a few miles of the city, before they turn off almost at a right angle to the Port; but there can be no doubt as to the formation of a direct line of communication with the Port from Gawler Town, if not of the establishment of a railway, ere many years shall elapse, for not only are the principal stock stations of the province, but the more valuable mines to the north of this town.

Up to this point the traveller does not quit the plains of Adelaide, the Mount Lofty Range being to the eastward of him and the plains, bounded by the mangrove swamps extending towards St. Vincent's Gulf. Generally speaking, for their extent the soil is not good, but there are patches of alluvial soil, the deposits of creeks falling from the hills, that are rich and fertile. Yet, notwithstanding the quality of the soil, a great portion of the Adelaide plains have been purchased and are under cultivation. There is a great deficiency of surface water upon them, but it is procurable by digging wells; and Mr. Ellis I believe has rendered those parts of them contiguous to the Gawler available as sheep stations, by sinking wells for the convenience of his men and stock; neither can there be a doubt but that many other apparently unavailable parts of the

province might be rendered available by the adoption of similar means, or by the construction of tanks in favourable situations.

This is a point it is impossible to urge too much on the attention of the Australian stock holder. There is generally speaking a deficiency of water in those Colonies, and large tracts of country favourable to stock are unoccupied in consequence, but the present liberal conditions on which leases of Crown lands are granted will make it worth the sheep farmer's while to make those improvements which shall so conduce to his prosperity and comfort.

In proof of this, I would observe that I had several capacious tanks on my property at Varroville, near Sydney, for which I was indebted to Mr. Wells the former proprietor, and not only did they enable me to retain a large quantity of stock on my farm, when during a season of unmitigated drought my neighbours were obliged to drive their cattle to distant parts of the Colony—but I allowed several poor families to draw their supplies from, and to water some of their cattle at my reservoirs.

Beyond Gawler Town the country changes in character and appearance, whether you continue the northern road across the river, or turn more to the eastward, you leave the monotonous plain on which you have journeyed behind, and speedily advance into an undulating hilly country, lightly wooded withal, and containing many very rich, if not beautiful valleys. The Barossa Range and the districts round

it are exceedingly pretty. Here, at Bethany, the Germans who have fled from the religious persecution to which they were exposed in their own country have settled, and given the names of several places in their Fatherland to the features around them. The Keizerstuhl rises the highest point in the Barossa Range, the outline of which is really beautiful, and the Rhine that issues from its deep and secluded valleys flows northwards through their lands.

In this neighbourhood Mr. Angas has a valuable property, as also the South Australian Company. Angas Park is a place of great picturesque beauty, and is capable of being made as ornamental as any nobleman's estate in England. The direct road to the Murray River passes through Angas Park, but a more northerly course leads the traveller past the first of those valuable properties to which South Australia is mainly indebted for her present prosperous state. I mean the copper mines of Kapunda, the property of Captain Bagot, who, with Mr. Francis Dutton, became the discoverer and purchaser of the ground on which the principal lode has been ascertained to exist. There has been a large quantity of mineral land sold round this valuable locality, but although indications of copper are everywhere to be seen, no quantity sufficiently great to justify working had I believe been found up to the time I left the Colony. As however I shall have to give a more detailed account of the mines of South Aus-

tralia, it may not be necessary for me to speak of them at length in this place.

Captain Bagot is anxious to establish a township in the vicinity of Kapunda, and he will no doubt succeed, the very concourse of people round such a place being favourable to his views.

Beyond this point to the north the coast range of Mount Lofty, which thus far preserves a northerly direction, throws off a chain to the westward of that point, but the main range still continues to run up into the interior on its original bearing, rather increasing than decreasing in height. Upon it, the Razor Back Mount Brian, to the south of which is the great Burra Burra mine, and the Black Rock Hill, rise to the height of 2922, 3012 and 2750 respectively. On the more western branch of the chain, Mount Remarkable, Mount Brown, and Mount Arden, so named by Captain Flinders, form the principal features. This chain has been traced by Mr. Eyre to Mount Hopeless, in lat. 29½, and has been found by him to terminate in the basin of Lake Torrens. The main range on the contrary has only been followed up to lat. 32° 10′, beyond which point it cannot extend to any great distance, as if it did, I should necessarily have seen something of it during my recent expedition. It is a remarkable fact that the further the northern ranges have been followed up, the more denuded of trees they have become. Immense tracts of land, through

many slender stems, and affording but an imperfect shade. About the latitude of 34° the character of the Murray belt changes—it becomes denser and more diversified. Pine trees on sandy ridges, Acacia, Hakea, Exocarpi, and many other shrubs form a thick wood, through which it is difficult to keep a correct course. Occasionally a low brush extends to the cliffs overlooking the valley of the Murray, but it may be said, that there is an open space varying in breadth from half a-mile to three miles between the Murray belt and the river. It is a flat table land about 250 or 300 feet above the level of the sea, the substratum being of the tertiary fossil formation. The surface is a mixture of red sand and clay, mixed with calcareous limestone in small rounded nodules. The very nature of this soil is heating, and the consequence is that it has little herbage at any one time. There is however a succession of vegetation, especially during the spring months, which, from the fact of the cattle being particularly fond of it, must I should imagine be both sweet and nutritious.

Any one who has ever been on the banks of the Murray will admit that it is a noble river. The description I have already given supersedes the necessity of my dwelling on it here. In another place I shall have to speak of it, not in a commercial point of view, but as a line of communication between two distant colonies, and the important part it has acted in the advancement of the province of

South Australia. As a commercial river, I fear it will not be of practical utility. To prove this, it may be necessary for me to observe that the Murray runs for more than five degrees of latitude through a desert. That it is tortuous in its course, and is in many places encumbered with timber, and its depth entirely depends on the seasons. The difficulties, therefore, that present themselves to the navigation of the central Murray are such as to preclude the hope of its ever being made available for such a purpose, even admitting that its banks were located at every available point. Moorundi, the property of Mr. Eyre, the present Lieutenant-Governor of New Zealand, is ninety miles from Adelaide, and twenty-six from the N.W. bend of the Murray. It is part of a special survey of four thousand acres taken by Mr. Eyre and Mr. Gilles on the banks of the river, and in consequence of its appropriate position, was selected by Captain Grey, the then Governor of South Australia, as a station for a Resident Magistrate and Protector of the Aborigines, to fill both which appointments he nominated Mr. Eyre. There can be no doubt, either as to the foresight which dictated the establishment of this post on the banks of the Murray, or the selection of Mr. Eyre as the Resident. At the time this measure was decided on, the feelings of the natives on the river were hostile to the settlers. The repeated collisions between them and the Overlanders had kindled a deep spirit of revenge in their breasts, and although they suffered

severely in every contest, they would not allow any party with stock to pass along the line of the river without attempting to stop their progress; and there can be no doubt but that, in this frame of mind, they would have attacked the station next the river if they had been left to themselves, and with their stealthy habits and daring, would have been no mean enemy on the boundaries of location. The character and spirit of these people is entirely misunderstood and undervalued by the learned in England, and the degraded position in the scale of the human species into which they have been put, has, I feel assured, been in consequence of the little intercourse that had taken place between the first navigators and the aborigines of the Australian Continent. I have seen them under every variety of circumstances—have come suddenly upon them in a state of uncontrolled freedom — have passed tribe after tribe under the protection of envoys—have visited them in their huts—have mixed with them in their camps, and have seen them in their intercourse with Europeans, and I am, in candour, obliged to confess that the most unfavourable light in which I have seen them, has been when mixed up with Europeans.

That the natives of the interior have made frequent attacks on the stations of the settlers I have no doubt; very likely, in some instances, they have done so without any direct provocation, but we must not forget their position or the consequences of the

extension of boundaries of location to the aborigines themselves. The more ground our flocks and herds occupy, the more circumscribed become the haunts of the savage. Not only is this the inevitable consequence, but he sees the intruder running down his game with dogs of unequalled strength and swiftness, and deplores the destruction of his means of subsistence. The cattle tread down the herbs which at one season of the year constituted his food. The gun, with its sharp report, drives the wild fowl from the creeks, and the unhappy aborigine is driven to despair. He has no country on which to fall back. The next tribe will not permit him to occupy their territory. In such a state what is he to do? Is it a matter of surprise that in the confidence of numbers he should seek to drive those who have intruded on him back again, and endeavour to recover possession of his lost domain? It might be that the parties concerned were not conscious of the injury they were inflicting, but even that fact would not lessen the fancied right of the native to repossess himself of his lost territory. Yet on the other hand we cannot condemn resistance on the part of the white man; for it would be unjust to overlook the fearful position in which they are placed, and the terrible appearance of a party of savages working themselves up to the perpetration of indiscriminate slaughter. No doubt many parties have gone to take up stations in the interior,

with the honest intention of keeping on good terms with the natives, and who in accordance with such resolution have treated them with hospitality and consideration; but, it unfortunately happens that a prolonged intercourse with the Europeans weakens and at length destroys those feelings of awe and uncertainty with which they were at first regarded. The natives find that they are men like themselves, and that their intrusion is an injury, and they perhaps become the aggressors in provoking hostilities. In such a case resistance becomes a matter of personal defence, and however much such collisions may be regretted, the parties concerned can hardly be brought to account; but, it more frequently happens, that the men who are sent to form out-stations beyond the boundaries of location, are men of bold and unscrupulous dispositions, used to crime, accustomed to danger, and reckless as to whether they quarrel, or keep on terms with the natives who visit them. Thrown to such a distance in the wild, in some measure out of the pale of the law, without any of the opposite sex to restrain their passions, the encouragement these men give to their sable friends, is only for the gratification of their passions. The seizure of some of their women, and the refusal to give them up, provokes hostility and rouses resentment, but those who scruple not at the commission of one act of violence, most assuredly will not hesitate at another. Such cases are gene-

rally marked by some circumstances that betray its character, and naturally rouse the indignation of the Government. If the only consequence was the punishment of the guilty, we should rejoice in such retributive justice; but, unfortunately and too frequently, it happens, that the station belongs to a stockholder, who, both from feelings of interest and humanity, has treated the natives with every consideration, and discountenanced any ill-treatment of them on the part of his servants, but whose property is nevertheless sacrificed by their misconduct.

I have been unintentionally led into this subject, in the course of my remarks on the policy of Captain Grey, in establishing the post at Moorundi. The consequences have been equally beneficial to the settlers and aborigines. The eastern out-stations of the province have been unmolested, and parties with stock have passed down the Murray in perfect safety. If any act of violence or robbery has been committed by the natives, the perpetrators have been delivered up by the natives themselves, who have learnt that it is their interest to refrain from such acts; and instead of the Murray being the scene of conflict and slaughter, its whole line is now occupied by stock-stations, and tranquillity everywhere prevails.

About fifteen miles below Moorundi is Wellington, where a ferry has been established across the Murray, that township being on the direct road from Adelaide to Mount Gambier, and Rivoli Bay.

A little below Wellington, Lake Victoria receives the waters of the Murray, which eventually mingle with those of the ocean, through the sea mouth.

The country immediately to the eastward of the Murray affords, in some places, a scanty supply of grass for sheep, but, generally speaking, it is similar in its soil and rock formation, and consequently in its productions to the scrubby country to the westward. The line of granite I have mentioned, in the former part of my work, as traversing or crossing the Murray below Wellington, continues through the scrub, large blocks being frequent amongst the brushes on a somewhat lower level than the tertiary fossil limestone in its neighbourhood. Round these blocks of granite the soil is considerably better, and there is a coating of grass upon it, as far as the ground consists of the decomposed rock.

About sixty miles to the E.S.E. of Wellington is the Tatiara country, once celebrated for the ferocity and cannibalism of its inhabitants, but now occupied by the settlers, who have of late crossed the Murray in considerable numbers to form stations there. The distance from Wellington to the district of Mount Gambier, said to be the fairest portion of South Australia, whether as regards its climate or its soil, is more than 200 miles. The first portion of the road, to almost the above distance, is through a perfect desert, in which, excepting during the rainy season, water is scarcely to be found, so that

the journey is not performed without its privation. After passing Lake Albert the traveller has to journey at no great distance from the Coorong over a low country, once covered by the waters of the ocean, the noise of whose billows he hears through the silence of the night. The first elevation he reaches is a continuation of the great fossil bed, through which the volcanic hills, where he will ultimately arrive, have been forced up. Mount Gambier, the principal of these, is about 40 miles from the Glenelg, and 50 from Rivoli Bay. The country from either of these points is low for many miles, but well grassed, of the richest soil, and in many places abundantly timbered. Mount Gambier is scarcely visible until you almost reach its base—nor even then is its outward appearance different from other hills. On reaching its summit, however, you find youself on the brink of a crater, standing indeed on a precipice, with a small sheet of water of about half-a-mile in circumference, two hundred feet below you; the water of which is as blue as indigo, and seems to be very deep; no bottom indeed has been found at 50 fathoms. The ground round the base of Mount Gambier is very open, and you may ride your horse along it unchecked for many miles. At the lower parts, and at some distance from it, the ground is moist, and many caverns have been found in which water of the very purest kind exists, no doubt deposited in the natural reservoirs by percolation from the higher

ground. The whole formation of the district, these capacious caverns, and the numerous and extensive tea-tree swamps along the coast, plainly demonstrate that they are supplied by gradual filtration, or find their way through the interstices, or cells of the lava to the lower levels.

It is generally admitted that the greater part of the land in the neighbourhood of Mount Gambier is equal to the richest soil, whether of Van Diemen's Land or of Port Phillip, the general character indeed of this district, and the fact of its being so much farther to the south than Adelaide, its perpetual verdure and moister climate would lead to the supposition that it is capable of producing grain of the very finest quality, and there can, I think, be but little doubt that it will rival the sister colonies in its agricultural productions, and considering the nature of the soil is similar to that round the volcanic peaks in the Mediterranean, it will also produce wine of a superior description. Settlers both from the province of South Australia and neighbouring colonies have vied with each other in securing stations in this fertile, but remote district, and it would appear from the number of allotments that have been purchased in the townships which have been established on the coast that settlers are fast flocking to it.

From what has been stated it would seem that the district of Mount Gambier is adapted rather for agricultural than pastoral pursuits, and that it is

consequently favourable for occupation by a rural population. Tea-tree swamps (melaleuca) are a feature, I believe, peculiar to South Australia, and generally indicate the presence of springs, and always of moisture. The soil is of the very richest quality, and there is, perhaps, no ground in the world that is more suitable for gardens, and as these swamps are both numerous and extensive in the lower country, behind Rivoli and Guichen Bays, this portion of the province promises equally fair for the growth of those European fruits which are less advantageously cultivated in the more northern parts of the province.

Returning to Adelaide, and proceeding from thence to the eastward, along the great eastern or Mount Barker line, we cross, in the first instance, the remaining portion of the plains lying between the city and the hills, to the base of which the distance is about three miles, the whole is laid out in farms, and is extensively and carefully cultivated. As you approach the hills, the country becomes lightly wooded and undulating, affording numerous sites for villas, on which many have already been erected, both by settlers and the more opulent tradesmen. Individuals indeed, residing in England, can form but a faint idea of the comforts and conveniences they enjoy, at such a distance from their native country. Being at sufficient elevation to catch the sea breeze, which passes over the plains of Adelaide, without being felt, they have almost the

advantage of living near the sea coast, and the cool winds that sweep down the valleys behind them, and constitute the land breeze, ensure to them cool and refreshing evenings, when those dwelling at a lower elevation are oppressed by heat. On the first rise of the mountains is the Glen Osmond Lead Mine, which will be noticed hereafter. The Mount Barker district being more numerously settled than most other parts of the province, and being one of its most important and fertile districts, more labour has been expended on the road leading into it, than on any other in the colony. From the level of the Glen Osmond Mine, it winds up a romantic valley, with steep hills of rounded form, generally covered with grass, and studded lightly with trees on either side, nor is it, until you attain the summit of the Mount Lofty range, that any change takes place in the character of the hills or the vegetation, you then find yourself travelling through a dense forest of stringy barks, the finest of which have been levelled to the ground, with the axe, for the purpose of being sawn into planks for building, or split into rails for fencing. From Crafer's Inn, situated under the peak of Mount Lofty, the road to Mount Barker passes through a barren country for some miles, and crosses several steep valleys, in the centre of which there are rippling streams; the summit of the ranges still continues to be thickly wooded, the ground underneath being covered with shrubs and flowers of numberless kinds and varied beauty. In

illustration of this, I may observe, that the first time I crossed the Mount Lofty range, I amused myself pulling the different kinds of flowers as I rode along, and on counting them when I reached Adelaide for the purpose of arranging them in a book, found that I had no less than ninety-three varieties. The majority of these, however, consisted of papilionaceous plants, and several beautiful varieties of Orchideæ. On descending to a lower level, after crossing the Onkaparinga, the scenery and the country at once change, you find yourself upon rich alluvial flats, flanked by barren rocky hills, the air during the spring being perfumed by the scent of the Tetratheca, a beautiful hill flower, at that time in splendid blossom, and growing in profusion on the tops of the hills, mingled with the Chyranthera, with its light blue blossoms; both these plants it has always appeared, are well adapted for the edges of borders, but there are not many plants in Australia that would be fit for such a purpose.

It does not appear necessary, in a work like this, to trouble the reader with an account of every village or of every valley in the districts through which I lead him; my object is to give a general and faithful description of the country only, reserving the power of drawing attention to any thing I may deem worthy of notice. Taking the district of Mount Barker therefore in its full range, I would observe, that it is one of the finest agricul-

tural districts in the province. It abounds in very many beautiful alluvial valleys, which, when I first crossed, had grass that rose above the horses middles as they walked through it, and looked luxuriant beyond description. These valleys are limited both in length and breadth, but are level and clear; their soil is a rich alluvial deposit, and the plough can be driven from one end to the other without meeting a single obstacle to check its progress. Independently of these valleys, there are other portions of good grazing land in the Mount Barker district, but there are, nevertheless, very many stony ranges that are entirely useless even to stock. The Mount Barker district may be said to extend from the village of Nairne to Strathalbyn, on the River Angas, the latter place being 15 miles from the shores of Lake Victoria. Within the range of this district, there are also the villages of Hahansdorf and Macclesfield, the former being a German village, at no great distance from Mount Barker. Immediately to the north of the village of Nairne is Mount Torrens, the river of that name has several branches to the north-east of it as high up as Mount Gould. The first of the Company's special surveys, and perhaps some of the finest soil in the province is in this locality. The surveys on the sources and tributaries of the Torrens are splendid properties, and the Company may well consider them as amongst the most valuable of its acquisitions; beyond the heads of the Torrens the country is more hilly and

less available. There are, nevertheless, isolated spots sufficiently large for the most comfortable homesteads. From this point, a west-south-west course will soon lead the traveller into the plains of Adelaide, and at less than 10 miles after entering upon them, he will again find himself in the metropolis. Again departing from it for the southern parts of the province, he will keep the Mount Lofty range upon his left, and will really find some difficulty in passing the numberless fences which now enclose the plains. The land indeed in this line of road is more fenced than in any other direction, a reason for this may be that the road runs nearer the base of the hills, and the land is consequently better than that on the lower ground. Many very excellent farms are to be found on the banks of the Sturt and the Onkaparinga, on the latter of which the village of Noorlunga has been established, at the point where the road crosses it. The Sturt has a tortuous course, somewhat to the northward of west, and falls into the gulf at Glenelg, after spreading over the flats behind the sand-hills at that place. The direction of the road is parallel to that of the ranges, or nearly south-south-west as far as the village of Noorlunga, when it turns more to the eastward of south, for Willunga, which is 28 miles distant from Adelaide. The banks of the Onkaparinga, above the crossing place, are extremely inaccessible, insomuch that stock can hardly be driven down to water for many miles above that

point. The hills however are rounded in form, grassy, and clear of trees, consequently well adapted for grazing purposes. It was at Noorlunga, which is not more than two miles from the gulf, and can be approached in boats, as high as the bridge there, that Captain Barker first landed on the South Australian shore. The country between it and Willunga is generally good, portions of it are sandy and scrubby, but Morphett's Vale is a rich and extensive piece of land, and I can well remember before it was settled seeing several large stacks of hay that had been cut, as it then lay in a state of nature. Willunga is close under the foot of the hills, which here, trending to the south-south-west, meet the coast line extremity of the Southern Aldinga plains. Close to this point is a hill, called Mount Terrible, almost of a conical shape, over the very summit of this, in the early stages of the colony, the road led to Encounter Bay; and I shall not forget the surprise I experienced, when going to that place, on finding I could not by any possibility avoid this formidable obstacle. On the other side of Mount Terrible the country is very scrubby for some miles, until, all at once, you burst upon the narrow, but beautiful valley of Mypunga. This beautiful valley, which had scarcely been trodden by the European when I first encamped upon it, was then covered with Orchideous plants of every colour, amidst a profusion of the richest vegetation. A sweet rippling stream passed within five yards of my tent-door, and found its

way to the Gulf about a mile below me to the west. It was on the occasion of my going to the sea mouth of the Murray, that I first stopped at this spot. Amongst the boat's crew I had brought with me from Adelaide a young lad, of not more than twenty-one, who had, for some weeks before, been leading a very hard life. At Mypunga he was seized with delirium tremens, and became so exceedingly outrageous, that I was obliged to have his feet and hands tied. In the morning he was still as frantic as ever, but the policeman, under whose charge I had placed him, having imprudently loosened the cord from his ankles, he suddenly started upon his feet, and gaining the scrub, through which we had descended into the valley, with incredible swiftness, secreted himself amongst it. Nor could we, by the utmost efforts during that and the succeeding day, discover his hiding place. I was accompanied by a man of the name of Foley, a bushranger of great notoriety, who had been captured by the Adelaide police, and was sent with my party in the hope that his knowledge of the coast would be of use to me, but neither could he discover the unfortunate runaway, who, there is no doubt, subsequently perished. Beyond Mypunga, to the south, are the valleys of Yankalilla and Rapid Bay, but very little, if in any respect inferior to the first mentioned place. The country between them is, however, extremely hilly, and contains some beautifully romantic spots of ground. The rock formation of this part of the

ranges is very diversified; the upper part of Rapid valley is a fine grey limestone; a little to the southward veins both of copper and lead have been discovered, and I have good reason for supposing that quicksilver will one day or other be found in this part of the province. At Willunga there is a small stream, which issues from a valley close behind the township, and appears in former times to have laid many hundred acres of the flats below under water. Their soil is composed of the very richest alluvial deposit, and has produced some of the finest crops of wheat in the province. Aldinga plains lie to the southwest of Willunga, and are sufficiently extensive to feed numerous sheep, but unavailable in consequence of the deficiency of water upon them, and are an instance of a large tract of land lying in an unprofitable state, which might, with little trouble and expense, by sinking wells in different parts, be rendered extremely valuable. On ascending the hills above Willunga, in following up the southern line of road to Encounter Bay, it leads for several miles through a stringy-bark forest, and brings the traveller upon the great sandy basin, between Willunga and Currency Creek. This gloomy and sterile feature bears a strong contrast to the rich and fertile valleys I have described, and is really a most remarkable formation in the geology of the province. At an elevation of between 600 and 700 feet this basin is surrounded on all sides by rugged stony hills, excepting to the south and south-east, in which direc-

tion it falls into the valley of the Hindmarsh and Currency Creek respectively. Mount Magnificent, Mount Compass, and Mount Jagged, rise in isolated groups in different parts of the basin, the soil of which is pure sand, its surface is undulating, and in many parts covered with stunted banksias, through which it is difficult to force one's way in riding along. The Finniss rises behind Mount Magnificent, and is joined by a smaller branch from Mount Compass, as it flows from the eastward. At about 25 miles from Willunga the traveller descends into the valley of Currency Creek, and finds the change from the barren tract over which he has been riding as sudden as when he entered upon it from the rich flats of Willunga. The valley of Currency Creek is not, however, the same as those I have already described in other parts of the colony; it is prettily wooded and grassy, but continues narrow for some distance after you have entered it; a small running stream, with a rocky bed, occupying the centre of the valley, which ultimately escapes from the hills by a kind of gorge, and discharges itself into an arm of the Goolwa. The extent of good land in Currency Creek is not very great, and is bounded both to the north and south by barren scrub. Due south, at the distance from 15 to 18 miles, is Encounter Bay, the country intervening between the two points to the shores of the Goolwa is very level, the soil is light but rich, and there appeared to me to be many thousand acres that were adapted for agricultural purposes, better adapted indeed tl

the richer soils. Whether that view be correct or not, the valleys of the Inman and Hindmarsh immediately behind Encounter Bay would fully make up for the want of agricultural land in this part of the province. Hindmarsh valley is not of any great extent, but the soil is good, and its scenery in my humble opinion surpasses any other I remember in South Australia. I shall never, indeed, forget the beautiful effect of sunset, on a fine bold mountain at the head of it, called the Black Hill. The glowing orb was fast descending behind it to the west, and the Black Hill was cast into deep shade, whilst the sun's rays shooting down two valleys on either side gave the grass the appearance of young wheat. The extent of arable land in the valley of the Inman is very considerable, but in point of scenery bears no comparison with the first. I do not know whether I have made it sufficiently clear that there is a high range at the back of the coast hereabouts. If not, I would observe that it runs uninterruptedly from Mount Lofty to Cape Jarvis. Opposite to Encounter Bay it occupies nearly the centre of the promontory, and consequently forms a division of the eastern and western waters, there being a considerable breadth of barren stringy-bark forest between the heads of the opposite valleys, here as on the higher parts of the ranges near Mount Lofty, from the ascent of the great eastern road to the valley of the Onkerparinga.

It is a remarkable fact, but one that I believe I

have already adverted to, that the farther north, towards the valley of the Wakefield, the more denuded of timber the country becomes, until at last not a tree of any kind can be seen. These extensive and open downs are, nevertheless, well grassed, and covered with a profusion of orchideous plants. Whether, however, there is any salt present in the soil, to check the growth of the trees, it is impossible to say. Undoubtedly many of the ponds in the Wakefield, as well as other parts of the province are brackish, but the same denuded state of the country exists not any where else. These districts are far too valuable to be overlooked, and are therefore extensively occupied by cattle and sheep. My most worthy friend, Mr. Charles Campbell, and my companion Mr. John Browne, and his brother, both occupy the most distant stations to the north. Mr. Campbell has one of the finest cattle runs in the province, and my comrade, I believe, is perfectly satisfied with his run. The condition of their cattle and sheep would at all events lead to the conclusion, that neither suffer from the nature of the water they drink or the pasture on which they feed.

As regards the general appearance of the wooded portion of the province, I would remark, that excepting on the tops of the ranges where the stringy-bark grows; in the pine forests, and where there are belts of scrub on barren or sandy ground, its character is that of open forest without the slightest

undergrowth save grass. The trees are more or less numerous according to the locality, as well as more or less umbrageous, a character they generally have on river flats, but the habit of the eucalyptus is, generally speaking, straggling in its branches. In many places the trees are so sparingly, and I had almost said judiciously distributed as to resemble the park lands attached to a gentleman's residence in England, and it only wants the edifice to complete the comparison.

The proportion of good to bad land in the province has generally been considered as divisible into three parts; that is to say, land entirely unavailable —land adapted for pastoral purposes only, and land of a superior quality. On due consideration, I am afraid this is not a correct estimate, but that unavailable country greatly preponderates over the other two. If, in truth, keeping the distant interior entirely out of view, and confining our observations to those portions of the colony into which the settlers have pushed in search for runs, we look to the great extent of unavailable country between the Murray and the Mount Gambier district, along the line of the Murray belt, and the extensive tracts at the head of the Gulfs, we shall find that South Australia, from the very nature of its formation, has an undue proportion of waste land. Those parts, however, which I have mentioned as being unavailable, were once covered by the sea, and could hardly be expected to be other than we now see them, and it

may, therefore, be questioned how far they ought to be put into the scale. In this view of the matter, and taking the hilly country only into account, the proportion of unavailable and of pastoral land may be nearly equal; but that of the better description will still, I think, fall short of the other two. Taking South Australia in its length and breadth, the quantity of available land is, beyond doubt, very limited, but I regard it as exceedingly good, and believe that its capabilities have by no means been ascertained. I feel satisfied, indeed, that necessity will prove, not only, that the present pastoral districts are capable of maintaining a much greater number of stock upon them than they have hitherto borne, but that the province is also capable of bearing a very great amount of population; that it is peculiarly fitted for a rural peasantry, and that its agricultural products will be sufficient to support masses of the population employed either in its mining or manufactures. In this view of the subject it would appear that Providence has adapted the land to meet its new destinies, and that nothing we can say, either in praise or censure of its natural capabilities, will have the effect of concealing either the one or the other, as time shall glide on.

On the better soils the average crop of wheat is rather over than under twenty-five bushels to the acre. In many localities, and more especially when the ground is first cropped, it exceeds forty; and on some lands, once my own, in the Reed Beds, at the

termination of the Torrens' river, five acres, which I sold to Mr. Sparshott, averaged fifty-two bushels to the acre. The Reed Beds may be said to be on the plains of Adelaide, and their very nature will account to the reader for the richness of their soil; but the soil of the plains is not generally good, excepting in such places where torrents descending from the hills have spread over portions, and covered them with an alluvial deposit to a greater or less depth. The average crop of wheat on the plains does not exceed twelve or fifteen bushels to the acre, and depends on the time when the hot winds may set in. Barley on the light sandy soil of the plains is much heavier than wheat.

In the description I have thus endeavoured to give of South Australia, I have omitted any mention of the district of Port Lincoln, chiefly because sufficient was not known of it when I sailed for England to justify my hazarding any remark. Recent advices from the colony state that a practicable line of route from Adelaide has been discovered along the western shore of Spencer's Gulf, and therefore, the disasters that overtook early explorers in that quarter, are not likely again to occur. It is farther said, that the number of sheep now depastured on the lands behind Port Lincoln, amounts to 70,000—a proof of the utility, if not the richness of the country—as far, however, as I am aware, the soil must be considered of an inferior description—in other respects, the Port has advantages that will always render it an

agreeable, if not altogether a desirable residence. It appears to be gradually improving, but the amount of its population is still low, not more than sixty. It is frequented by American and other whalers, but the duties collected add little to the revenues of the province. Port Lincoln, however, could hardly now be abandoned, since there are considerable interests at stake there. It has been stated that copper has been found in the interior, and I see no reason why it should not exist in the mountain formation of the Gawler Range, in such case an impulse will be given to the whole district, that would even change its prospects, and increase the mercantile operations of the province.

It does not appear to be the disposition of the English settlers to try experiments on the growth of intertropical productions. It must be admitted, however, that there are not many places in South Australia where they could be cultivated with advantage; for although both the plains of Adelaide and the valley of the Murray are warm in summer, the frosts, which are sufficient to blight potatoes, would necessarily injure, if they did not destroy, perennials, whilst in the hills the cold is adverse to any plants the growth of a tropical climate, if we except those which, as annuals, come to maturity in the course of a summer; but the true reason why the growth of extraneous productions is neglected in South Australia, is the expense consequent on the state of the labour market—for no

doubt many pursuits might be followed there that would be remunerative. It is exceedingly difficult, however, to lead the pursuits of a community out of their ordinary course, and it is only where direct advantages are to be gained, that the spirit of enterprise and speculation breaks forth.

The climate of South Australia is admirably adapted for the growth of fruit trees of the hardier tropical kinds, for although the tenderer kinds grow there also, they do not arrive at perfection. The loquat, the guava, the orange, and the banana, are of slow growth, but the vine, the fig, the pomegranate, and others, flourish beyond description, as do English fruit trees of every kind. It is to be observed, that the climate of the plains of Adelaide and that of the hills are distinct. I have been in considerable heat in the former at noon, and on the hills have been in frost in the evening. The forest trees of Europe will grow in the ranges, but on the plains they languish; in the ranges also the gooseberry and the currant bear well, but in the gardens on the plains they are admitted only to say you have such fruits; the pomegranate will not mature in the open air, but melons of all kinds are weeds. Yet, such trees as are congenial to the climate arrive at maturity with incredible rapidity, and bear in the greatest abundance. The show of grapes in Mr. Stephenson's garden in North Adelaide, and the show of apples and plums in Mr. Anstey's garden on the hills are fine beyond description, and could not be surpassed

in any part of the world—it may readily be imagined, therefore, that the intermediate fruit trees, such as the peach, the nectarine, the pear, the cherry, the greengage, and others, are of the most vigorous habits. All of them, indeed, are standards, and the wood they make during one season, is the best proof that can be given of their congeniality to the soil and climate of the province.

There are in South Australia two periods of the year which are equally deceptive to the stranger. The one is when the country is burnt up and suffering under the effects of summer heat—when the earth is almost herbless, and the ground swarms with grasshoppers— when a dry heat prevails in a calm still air. The other when vegetation is springing up under the early rains and every thing is green. Arriving at Adelaide during the first period, the stranger would hardly believe that the country, at any other season of the year, would be so clothed with herbage and look so fresh; arriving at the other, he would equally doubt the possibility of the vegetable kingdom being laid so completely prostrate, or that the country could assume so withered and parched an appearance; but these changes are common to every country under a similar latitude, and it would be unjust to set them down to its prejudice, or advantage.

The following mean of heat at 2 P.M. throughout the year, will give the reader a correct idea of the range of the thermometer. I have taken 2 P.M. as

being the hottest period of the day, and, therefore, nearest the truth.

January	85	—	106½	—	70
February	79	—	94	—	71
March	77	—	103½	—	68½
April	67½	—	85	—	55½
May	62	—	76	—	53
June	58	—	67	—	49
July	55	—	60	—	49
August	59	—	68	—	52
September	61	—	72½	—	55½
October	68½	—	94½	—	55
November	74	—	94	—	59
December	83	—	100	—	68

The west and south-west winds are the most prevalent, blowing for 130 or 140 days in the year. During the summer months the land and sea breezes prevail along the coast, but in the interior the wind generally commences at E.N.E., and going round with the sun settles at west in the afternoon.

I need not point out to the reader, that the above table only shews the mean of the thermometer during a certain hour of the day; the temperature during the night must necessarily be much lower; the coolness of the night, indeed, generally speaking, makes up for the mid-day heat. There are some days of the year when hot winds prevails, which are certainly very disagreeable, if not trying. Their occurrence, however, is not frequent, and will be easily accounted for from natural causes. They sometimes continue for three or more days, during

which time clouds of dust fill the air, and whirlwinds cross the plains, but the dryness of the Australian atmosphere considerably influences the feelings on such occasions, and certainly produces a different effect upon the system from that which would be produced at a much lower temperature in a more humid climate; for, no doubt, it is to the united effects of heat and moisture, where they more or less exist, that the healthiness or unhealthiness of a country may be ascribed. In such countries, generally speaking, either teaming vapours, or malaria from dense woods or swamps naturally tries the constitution, but to its extreme dryness, and the absence of all vegetable decay, it appears to me that the general salubrity of South-east Australia is to be attributed. So rarified, indeed, is the atmosphere, that it causes an elasticity of spirits unknown in a heavier temperature. So the hot winds, of which I have been speaking, are not felt in the degree we should be led to suppose. Like the air the spirits are buoyant and light, and it is for its disagreeableness at the time, not any after effects that a hot wind is to be dreaded. It is hot, and that is all you can say; you have a reluctance to move, and may not rest so well as usual; but the spirits are in no way affected; nor indeed, in the ordinary transactions of business does a hot wind make the slightest difference. If there are three or four months of warm weather, there are eight or nine months of the year, during which the weather

is splendid. Nothing can exceed the autumn, winter, and spring of that transparent region, where the firmament is as bright as it would appear from the summit of Mount Blanc. In the middle of winter you enjoy a fire, the evenings are cold, and occasionally the nights are frosty. It is then necessary to put on warmer clothing, and a good surtout, buttoned across the breast, is neither an uncomfortable nor unimportant addition. Having said thus much of the general salubrity of the climate of South Australia, I would observe, in reference to what may be said against it, that the changes of temperature are sudden and unexpected, the thermometer rising or falling 50° in an hour or two. Whether it is owing to the properties I have ascribed, that the climate of this place as also of Sydney should be fatal to consumptive habits, I do not know, but in both places I have understood that such is the case, and in both I have had reason to regret instances. It has been said that influenza prevailed last year in Adelaide to a great extent, and that it carried off a great many children and elderly persons. An epidemic, similar in its symptoms, may have prevailed there, and been severe in its progress, but it hardly seems probable that the epidemic of this country should have been conveyed through constant change of air, the best cure for such a disease, to so distant a part of the world. With all its salubrity, indeed, I believe it may be said, that South Australia is subject to the more unimportant maladies

like other countries, but that there are no indigenous disorders of a dangerous kind, and that it is a country which may strictly be called one of the healthiest in the world, and will, in all probability, continue so, as long as it shall be kept clear of European diseases.

Having thus endeavoured to give a description of the general character and climate of this limited but certainly beautiful portion of the Australian continent, without encumbering my description with any remark on the principal and particular sources of wealth it possesses, which not being usual, could not, or rather would not, have been considered applicable. I hope the object I have had in view will be sufficiently clear to the reader. I have endeavoured to point out with an impartial pen, the real capabilities of the province, and the nature of those productions which are most congenial to her soil. Without undue praise on the one hand, or unjust depreciation on the other, it has been my desire to present a faithful picture of her to my readers, and I hope it will appear from what I have said, as is really and truly the case, that both in climate and other respects it is a country peculiarly adapted to the pursuits and habits of my countrymen. That its climate so far approaches that of England, as to be subject to light and partial frosts, which render it unfit for the cultivation of tropical productions, but make it essentially an agricultural country, capable of yielding as fine cereal grain as any country in the world,

of whatever kind it may be—that at the same time the greater mildness of the climate makes it favourable to the growth of a variety of fruits and vegetables, independently of European fruit trees and culinary herbs, which put it in the power of the settler to secure the enjoyment of greater luxuries and comforts, than he could possibly expect to have done in his own country, except at a great expense, and that as far as the two great desiderata go, on which I have been dwelling, it is a country to which an Englishman may migrate with the most cheerful anticipations.

CHAPTER III.

SEASONS—CAUSE WHY SOUTH AUSTRALIA HAS FINE GRAIN—EXTENT OF CULTIVATION — AMOUNT OF STOCK — THE BURRA-BURRA MINE—ITS MAGNITUDE—ABUNDANCE OF MINERALS—ABSENCE OF COAL—SMELTING ORE—IMMENSE PROFITS OF THE BURRA-BURRA—EFFECT OF THE MINES ON THE LABOUR MARKET—RELUCTANCE OF THE LOWER ORDERS TO EMIGRATE—DIFFERENCE BETWEEN CANADA AND AUSTRALIA—THE AUSTRALIAN COLONIES—STATE OF SOCIETY—THE MIDDLE CLASSES—THE SQUATTERS—THE GERMANS—THE NATIVES—AUTHOR'S INTERVIEWS WITH THEM—INSTANCES OF JUST FEELING—THEIR BAD QUALITIES—PERSONAL APPEARANCE—YOUNG SETTLERS ON THE MURRAY—CONCLUSION.

It was my object in the last chapter, to confine my observations strictly to the agricultural and pastoral capabilities of the province of South Australia, which I thought I could not better do than by describing the nature of its climate and soil, for on these depend the producing powers of every country. In speaking of the climate, however, I merely adverted to its temperature, leaving its seasons out of question for the time, intending to close my remarks on these heads, by a short review of the state of the agricultural and pastoral interests of the colony at the present date.

It will be borne in mind that the seasons of Australia are the reverse of our own; that when in

England the ground is covered with snow, there the sun is hottest, and that when summer heats are ripening our fruits, in Australia it is the coldest season of the year, December, January, February, and March being the summer months; June, July, August, and September the winter ones. An experience of ten years has shewn that the seasons of South Australia are exceedingly regular, that the rains set in within a few days of the same period each successive year, and that during the winter the ground gets abundantly saturated. This regularity of season may be attributed to the almost insular position of the promontory of Cape Jarvis, and may be said to be almost local, in elucidation of which, I may refer to what I have stated in the former part of my work, of the state of the weather in the valley of the Murray when the expedition was proceeding up its banks in the month of August, 1844. For some time before there had been heavy rains in the hills, and it was with some difficulty the drays crossed them. During our stay at Moorundi, the ranges were covered with heavy clouds, and the mountain streams were so swollen as to stop one of my messengers; but the sky over the valley of the Murray was as clear as crystal, morning mists it is true curled up at early dawn from the bosom of its waters, but they were soon dissipated, and a sharp frosty night was succeeded by a day of surpassing beauty.

The regularity, however, both in its commencement and in the quantity of moisture that falls

during the rainy season in the colony, enables the agriculturist to calculate with certainty upon it, and the only anxiety of the farmer is to get his grain into the ground sufficiently early, if possible, to escape the first hot winds. In a region, portions of which are subject, it must be confessed, to long continued drought, this is no inconsiderable advantage, although South Australia is not singular in this respect, for the rainy seasons in the Port Phillip districts are, I believe, equally regular and more abundant, whilst the climate of Van Diemen's Land almost approaches to that of England; neither, indeed, fairly speaking, is South Australia more favoured than those of her immediate neighbours in the quality of her soil. Van Diemen's Land is the granary of the southern seas, and there is unquestionably a very great proportion of the very best soil in the Port Phillip district. Nevertheless that of South Australia has yielded a finer and a heavier grain than has ever been produced in those colonies, but the reason of this is, that with a naturally rich soil to work upon, the agriculturists of South Australia have spared no pains in cultivating their lands, but there can be no doubt that with equal care and attention both the Vandemonians and the settlers of Port Phillip would produce an equally fine sample. The farmers of South Australia have enhanced the value of their colony by their energy and skill in cultivating it, and can boast of having sent the finest sample of wheat to England that has ever been exhibited in her market.

South Australia, in its length and breadth, contains about 300,000 square miles, or in round numbers more than 190,000,000 acres. The limits of location, however, do not exceed 4000 miles, or 7,000,000 acres. In this area, however, a great portion of desert country is included, or such, at least, as at the present moment is considered so. Of the more available land, 470,000 acres have been purchased, but the extent of country occupied by sheep and cattle stations is not known.

It may be necessary here to observe, that the returns of the land under cultivation last year were published after I left the colony; but the comparison between the two previous years will shew the increase and decrease of the different grains, sufficiently to establish the progress of agricultural pursuits in the colony. In the year 1845, the number of acres of wheat sown was 18,848. In 1846 it was 26,135. Of barley, there were in the former year 4,342 acres, in the latter only 3,490. Of oats, there were 1,485 in the first year, which, in 1846, increased to 1,963. It would thus appear, that the increase of cultivated land in the course of one year amounted to between 6000 and 7000 acres, and that more than 400 agriculturists were added to the list of landed proprietors. The necessary consequence of such extensive farming operations is that the produce far exceeds the wants of the settlers, and that there is a considerable surplus for exportation; the price of the best flour being from £12. to £13. per ton, whereas for a short period in 1839 it was £120!!!

Whilst the agriculturists have been so earnest in the development of the productive powers of the colony, another class of its inhabitants were paying equal attention to its pastoral interests. The establishment of stock stations over its surface followed its occupation, and a mild climate and nutritive herbage equally contributed to the increase of cattle and sheep that had been introduced. In 1844 the number of sheep assessed was 355,700, in the following year that number had increased to 480,669, or an addition of 120,000. At the present moment there cannot be far short of a million of sheep in the province, with an increase of 200,000 annually, at a moderate computation. The number of other kinds of stock in the possession of the settlers, at the close of last year, was as follows:—of cattle, 70,000; 30,000 having been imported during the two previous years from New South Wales. The number of horses was estimated at 5000, and of other smaller stock, as pigs and goats, there were supposed to be more than 20,000.

It is impossible to contemplate such a prosperous state of things in a colony that has only just completed the eleventh year of its existence, without feeling satisfied that some unusually favourable circumstances had brought it about. Had South Australia been as distant from the older colonies on the continent as Swan River, the amount of stock she would have possessed in an equal length of time, could not have amounted to a tenth of what they

now number. It is to the discovery of the Darling and the Murray that South Australia owes the superabundance of her flocks and herds, and in that superabundance the full and complete establishment of her pastoral interests. I stated in the course of my preliminary observations on the progress of Australian discovery, that when I was toiling down those rivers, with wide spread deserts on either side of me, I had little idea for what purposes my footsteps had been directed into the interior of the Australian Continent. If I ever entertained even a distant hope that the hilly country from which I turned back at the termination of the Murray, after having floated on its broad waters for eighty-eight days, might ever be occupied, I certainly never hoped that the discoveries I was then making would one day or other prove of advantage to many a friend, and that I was marking the way for thousands of herds and flocks, the surplus stock of New South Wales, to pass into the province of South Australia.

If then such consequences have resulted from enterprises, apparently of almost as hopeless a character as the one from which I have so recently returned, why, I would ask, should I despair, as to its one day or other being instrumental in benefiting my countrymen. There may yet be that in the womb of time which shall repay me for all I suffered in the performance of that dreary task — when I shall have it in my power to

say, that I so far led the way across the continent as to make the remainder of easy attainment, and under the guidance and blessing of Providence have been mainly instrumental in establishing a line of communication between its northern and southern coasts. I see no reason why I should despair that such may one day be the case. The road to the point which may be termed my farthest north is clear before the explorer. That point gained, less probably than 200 miles—a week's journey with horses less jaded than mine unfortunately were, and with strength less reduced—would place him beyond the limits of that fearful desert, and crown his labours with success. I believe that I could, on my old route, make the north coast of Australia, to the westward of the Gulf of Carpentaria, before any party from Moreton Bay. If it is asked what practical good I should expect to result from such an undertaking, I would observe, that nothing would sooner tend to establish an intercourse with the inhabitants of the Malay archipelago, than the barter of cattle and sheep, that in truth there is no knowing what the ultimate results would be. The Malays who visit the northern coasts of Australia to collect the sea slug, have little inducement to keep up an intercourse with our settlements in Torres Straits, but there can be no doubt of their readiness to enter into commercial intercourse with us, which, if Torres Straits are to be navigated by steamers, would be doubly important.

When the stock from New South Wales was first brought down the Murray, the journey occupied from three to four months. Latterly it did not take half that time. In less than fifty days, from the Murray, on his way to the north, the stock-holder would find that he had passed the centre, and an equal number of days from that point would, it appears to me, take him to his journey's end. This, however, would depend on the nature of the country beyond where it is at present known, and the nature of the season during which it was undertaken, but experience alone, as in the instance of the journey down the Murray, would be the best guide and the best instructor.

In the early part of the year 1840, I had occasion to address a number of the colonists at the conclusion of a public entertainment and availed myself of the opportunity to state that whatever prospects of success the pastoral capabilities of the province appeared to hold out, I felt assured it was to the mountains, the colonists would have to look for their future wealth, for that no one who pretended to the eye of a geologist could cross them as I had done, without the conviction that they abounded in mineral veins. There is something, in truth, in the outline and form of the Mount Lofty chain that betrays its character. Rounded spurs, of very peculiar form, having deep valleys on either side, come down from the main range, the general outline of which bears a strong resemblance to that of the Ural chain.

In the year 1843, the first discovery of copper was made, but even this was scarcely sufficient to rouse the colonists to a full sense of its importance, and it was only by degrees, as other mines were successively discovered, that the spirit of speculation burst forth, and the energies of the settlers were turned for a time from their legitimate channels. A short time before this, their circumstances had been reduced to the lowest ebb. There was no sale for agricultural produce, no demand for labour, the goods in the shops of the tradesmen remained unsold, and the most painful sacrifices of property were daily made at the auction mart. The amount of distress indeed was very great and severe, but such a state of things was naturally to be expected from the change that had taken place in the monetary affairs of the province. It was a change however which few anticipated, and for which few therefore were prepared.

It is a painful task to advert to past scenes of difficulty and distress, such at least I feel it to be, more especially where there is no immediate object to be gained by a reference to them; let me therefore turn from any inquiry into the causes which plunged South Australia into difficulties that threatened to overwhelm her, to those which raised her from them.

Notwithstanding the spirit and firmness with which the colonists bore their reverses, there could not but be a gloom over the community where every

thing seemed to be on the brink of ruin. Men's minds became depressed when they saw no relief in the present, and no hope in the future. But Time, with a rapid wing, brought about changes that appear permanently to have altered the circumstances of the colony, and to have placed it at once as one of the most flourishing of the British possessions. The first circumstance, I have understood, which partially cheered the drooping spirits of the settlers, was a slight rise in the price of wool, in the year I have mentioned. The discovery of the mines following soon upon this, the sun of prosperity burst at once upon the province, and gladdened every heart. From this period, mine after mine of copper and lead continued to be discovered. Every valley and hill-top was searched for hidden treasures, and the whole energies of the colonists seemed to be turned to this new source of wealth. I was absent in the interior when the Burra Burra mine was secured, but the excitement it created had not subsided when I reached Adelaide.

I do not know whether the presence of mineral veins is indicated in other countries as in South Australia by means of surface deposits. The opinion I formed that ores would be discovered in the Mount Lofty ranges did not rest upon the discovery of any such deposit myself, but on the peculiar form of the hills, which appeared to me to have settled into their present state from one of extreme fusion. The direction of the ranges being from north to

south, these deposits lie also in the same direction. Those of iron are greater than those of copper, and it is impossible to describe the appearance of the huge clean masses of which they are composed. They look indeed like immense blocks, that had only just passed from the forge. The deposits at the Burra Burra amounted, I believe, to some thousand tons, and led to the impression that where so great a quantity of surface ore existed, but little would be found beneath. In working this gigantic mine, however, it has proved otherwise. I was informed by one of the shareholders just before I left the colony, that it took three hours and three-quarters to go through the shafts and galleries of the mine. Some of the latter are cut through solid blocks of ore, which glitter like gold where the hammer or chisel has struck the rock, as you pass with a candle along them.

It would be out of place in me, nor indeed would it interest my readers, were I to enter into a statistical account of the profits of the Burra Burra mine. A general notice will convey every necessary information on that head, and enable the public to judge as well of its value and importance as if I entered into minuter details. It will give the reader some idea of the scene of bustle and activity the Burra mine and road must present, and the very great amount of labour it requires.

The quantity of ore sent weekly from the mine to the port is from 430 to 450 tons, employing fr

150 to 160 drays, and more than double that number of men. The total quantity of ore received at the port in December last was 10,000 tons, the average value of which at £20 per ton, amounts to £200,000, and the price of shares, originally of £5, had, by last advices, reached £160.

Considering the gigantic scale of the Burra Burra mine, it was supposed that few other mines would be found in the colony that would at all approach it, that indeed, it had been the principal deposit, and that whatever indications other mines might give, they would soon cease in working, or produce so little as to be valueless. I confess that such was my own opinion—surprised at the immense size of this magnificent mine, I hardly thought it possible that in mountains, after all of limited range, mines of great value would still be found, and that discoveries of new mines were frequently taking place, and that too in situations where no such feature would be supposed to exist. On York's Peninsula for instance, immediately across St. Vincent's Gulf, opposite to Port Adelaide, and directly on the sea shore, there are two sections, on which copper ore is abundant. The position of this mine can at once be determined by the reader, on a reference to the map. The land is very low, and the rock formation, tertiary fossil, but the various and anomalous positions in which copper is found in South Australia, baffles all ordinary calculations—as likely to exist in the valley, as on the hill—at the sea side as well

as inland: there is not a locality in which it may not be looked for and found.

The whole of the mountain chain indeed, is a mass of ore from one end to the other, and it is impossible to say what quantity, or how many of the richer metals will ultimately be found in a country through which the baser metals are, without doubt, so abundantly diffused. The quantity of gold hitherto discovered has not been important, but it is reasonable to suppose, that where a small quantity has been found, large deposits must be at no great distance. This gold however, like the baser metals of South Australia, is very pure, there being few component parts mixed with it.

From the various examinations of the hills that have at different times been made, it would appear that precious stones, as well as metals, exist amongst them. Almost every stone, the diamond excepted, has already been discovered. The ruby, the amethyst, and the emerald, with beryl and others, so that the riches of this peculiar portion of the Australian continent may truly be said to be in their development only.

With such prospects before it, there can be but little doubt that the wealth of South Australia will, one day or other, be very great, neither can there be any doubt but that the discovery of the mines at the critical period, made a complete revolution in the affairs of that colony, and suddenly raised it from a state of extreme depression to one of independence, even as an individual is raised to affluence,

from comparative poverty by the receipt of an unlooked-for legacy. The effect, however, which the discovery had on its present prospects, and the effect it must have on the future destinies of that colony, can hardly, it appears to me, be placed to the credit of any ordinary process of colonization. It has rather been in the shape of an unexpected auxiliary, that this immense and valuable supply of ore has been brought to bear upon its fortunes, for the condition to which the colony was reduced at one time, was such, that it would have taken many years to have acquired the appearance of returning prosperity, but the discovery of the mines was like the coming up of a rear-guard, to turn the tide of battle, when the main army had apparently been all but defeated. The assistance the colony received was complete and decisive, and has seemingly placed her beyond the hazard of failure or reverse: but, admitting the state of depression to which it was reduced, and the length of time it would have taken to bring about a healthy change, I yet believe, that the favourable position of the province as regards its connection with the other colonies, the character of its climate and soil, and the energies of its inhabitants, would have ensured its ultimate success. Before the depression in 1841, South Australia had become a pastoral country, in consequence of the number both of cattle and sheep that had been imported. In 1838, the city of Adelaide had scarcely been laid out, no portion of it had yet been sold, when flocks

and herds were on their way to the new market, and from that period, even to the present, there has been no cessation to their ingress—first of all, as I have stated, the Murray, and then the Darling, became the high roads along which the superfluous stock of Port Phillip and New South Wales were driven to browse on South Australian pastures, and to increase the quantity and value of her exports.

However low therefore the price of wool might have kept, the natural increase of stock would still have gone on, and if we may judge from the unflinching energies of the agricultural portion of the community, their efforts to develop the productive powers of the soil, would rather have been stimulated than depressed by the misfortunes with which they were visited. I do them nothing more than justice when I assure the reader, that settlers in the province from the neighbouring colonies, could not help expressing their surprise at the state of cultivation, or their admiration of the unconquerable perseverance, that could have brought about so forward and creditable a state of things.

I have already stated that the general outline and form of the Mount Lofty chain, bears a strong resemblance to the outline and form of the Ural mountains. But it is of trifling elevation, running longitudinally from north to south, with a breadth of from 15 to 20 miles. The metalliferous veins crop out on the surface of the ground, preserving the same longitudinal directions as the ranges themselves, and the

rock in which the ores are imbedded, generally speaking, is a compact slate. As the Mount Lofty ranges extend northwards, so does the Barrier or Stanley range, over which the recent expedition crossed on leaving the Darling; no copper ores were found amongst those hills, but an abundance of the finest ore of iron, running, as the out-croppings of the copper ores, from north to south, and occurring in depressed as well as elevated situations, the rock formation being very similar to that of the more western ranges.

If we are to judge from these facts, it is very evident that strong igneous action has influenced the whole, nor can I help thinking, from general appearances, that the continent of Australia has been subjected to a long subterranean process, by which it has been elevated to its present altitude, and it appears to me that that action, though considerably weakened, is still going on. The occurrence of two slight shocks of earthquake felt at Adelaide, since the establishment of the colony, would further strengthen this opinion.

The copper ores of South Australia fetch a higher price at the Swansea sales than those from any other part of the world, not only because they are intrinsically rich, but because they are generally composed of carbonates, which are necessary to facilitate the smelting of the ores of sulphuret of copper from Cuba and other places. The necessity for sending the ores from Adelaide to some foreign port to

undergo the process of smelting, will probably exist for a considerable length of time: until such time, indeed, as the electric process shall be found to answer on a sufficiently large scale to be profitable, or, until smelting works are established: but, the great difficulty to be apprehended in carrying on such operations would be the want of fuel, which scarce even at the present moment, would soon be more so—for there is not sufficient wood in the vicinity of any of the mines to keep up the supply for such a consumption as that which would be required; besides which, the cartage of the wood, and the expenses attending its preparation for the furnace, would materially diminish any profits arising from the smelting of the ores. In such a view of the case I cannot but think that the establishment of works at the mines will be found to be as unprofitable to their proprietors as to the smelter, and that such works will only be remunerative when carried on under more favourable circumstances—for it would appear that coal is the only mineral South Australia does not possess, and I am apprehensive that no bed of it will ever be found in the colony. I have ever thought the geological formation of the country unfavourable to the presence of coal, but, still, it is said to exist as a submarine formation close to Aldingi Bay. The discovery of this mineral in the province would immediately give to it, within itself, the means of the most unbounded wealth, and would undoubtedly fill up the measure of its prosperity to the brim.

By a late report of the Directors of the Burra Burra mine, it would appear, that they had made several successful attempts to smelt the ore, but, that the cost, having exceeded that of cartage to the port, and freight, the process has been abandoned. Parties, however, had offered to enter into an engagement to smelt the whole of the ore from the mine at about Swansea prices; notwithstanding the unfavourable circumstances under which such smelting would necessarily be carried on.

As I understand the nature of this arrangement, the ore will be smelted at the mine, and the remuneration to the smelter will be between fifty and sixty shillings per ton perhaps, by way of "return charges," or we will say between sixty and seventy shillings, which is a sum exactly equal to the cartage of the ore to the port. If then the Directors abandoned their intentions, because they found they could not smelt at so low a sum as the price of cartage and freight, how will the contractor make it pay under more unfavourable circumstances? No doubt, if he should find it remunerative, the shareholders of the Burra Burra would find it still more so, and it would be the interest of the proprietors of the larger mines to enter into similar engagements; but, on a due consideration of this important subject, I am led to believe that to make smelting works successful in South Australia, Companies must purchase the ore, and carry it off to localities suitable for the operation. Such an arrangement ıld still considerably increase the profits to the

proprietors of the mine, nor would there be any difficulty in determining the value of the ore, by processes similar to those adopted at Swansea, by which the interests of both parties are equally protected.

In the South Australian Register of the 27th of November of last year, it is stated that a Mr. Hunt, one of the auctioneers in Sydney, offered for sale thirteen tons of pure copper ore of colonial manufacture, from ore the produce of the Burra Burra, in ingots weighing 80 lbs. each; the ore having been smelted by Mr. James at Mr. Smith's foundry at Newtown. This copper was however bought in at £80, the limit being £85. per ton.

It will give the reader some idea of the character of this prodigious mine, and of the profits arising from it, to know, that during the four months preceding the 23rd October, 1847, the directors declared and paid three dividends, amounting to 200 per cent. on the subscribed capital, and that the credits of the Association on the 30th September were £104,694. 4*s* 8*d*. The Burra Burra mine however is not the only one of importance. Several others have of late been discovered, and South Australia may be said to be a thriving country in every sense of the word, and one in which those profitable interests will rapidly increase.

We have hitherto been speaking of the mines of South Australia as the sources of wealth, and as the sudden, if not the remote cause of the prosperity of

that province. It now becomes our duty to consider how far the discovery of the mines has benefited or interfered with the other branches of industry and sources of wealth; and as regards both these, it must be admitted that their discovery has had an injurious effect. The high rate of wages given by the proprietors of mines, not only to the miners, but to all whom they employ, draws the labourers from every other occupation to engage with them. The consequence has been a general want of labourers throughout the whole colony, still more severely felt by reason of the previous want of labour in the labour market. Every man who could obtain sufficient money to purchase a dray and team of bullocks, hurried to the mines for a load of ore to take to the port, and disdained any ordinary employment when by carting ore he could earn £6. or £7. in a fortnight. The labourer was quite right in going where he received the best remuneration for his services; but the consequences were in many instances fatal to their former employers. Many farmers were unable to put in seed or to cultivate their land; many, after having done so, were unable to gather it, and had it not been for the use of Mr. Ridley's machine, the loss in the crops would have been severely felt. Not only did the farmers suffer, but the stock-holders, and the colonists generally. The want of hands, indeed, was felt by all classes of the community, since the natural consequence of the high wages given by

the mining proprietors to the men they employed, tended still more to depress the labour market, and to increase the demand upon it by leading many of the more frugal labourers to purchase land with the money they were enabled to save. As landed proprietors they not only withdrew their labour from the market, but in their turn became employers; but I feel called upon to say at the same time, that equal distress was felt in the neighbouring colonies for working hands, where no mines had been discovered, and where they could not therefore possibly have interfered.

From what has been said of the province of South Australia, and setting its mines entirely out of the question, the description that has been given of its pastoral and agricultural capabilities, of its climate, and of the prospects of success which present themselves to the intending emigrant, it will naturally be inferred that the impression I have intended to convey is, that, as a colony, it is most peculiarly adapted for a British population, whether rural or other. The state of the colony is now such, that the way of the emigrant in landing is straight before him, for with honesty, sobriety, and industry, he cannot lose it. When I stated, in a former part of my work, that I would not take upon myself to give advice, which if followed, and not successfully, might subject me to the reproach of any one, I referred to those who have similar means of acquiring information to myself, and whose stakes, being considerable, make

the responsibility of giving advice the greater. With the lower orders—the working classes—the case is different. They have not the means of acquiring information on these matters, and it becomes the duty of those who can promote their welfare to do so. I am quite aware that there are many of my poor countrymen who would gladly seek a better home than they possess at this moment, but who, clinging to the spot where they were born, disheartened at the thought of abandoning their hearth, and bound by early recollections to their native country, cannot make up their minds to turn their backs on the companions of their youth, and the haunts of their childhood.

Such a feeling undoubtedly claims our sympathy and respect. It is that very feeling,—the love of Home,—the belief that they can no where be happier, which has been the strength of England, and has given her sons the heart to love, and the spirit to defend her. But the period however, when those feelings were so strong, has passed away,—more general ones have taken their place, and the circumstances of the times have so changed, that neither hearth nor home have the same attractions; a restlessness pervades the community, and a desire to escape from those scenes, and that spot which they or their forefathers once thought the most hallowed upon earth. But two circumstances have militated against the migration of the rural population in this country, to the Australian colonies, at all events.

The one has been an apprehension as to the length and nature of the voyage; the other the expense, more especially to a family man. Had it not been for these causes, the Australian colonies would not have had to complain of the want of labour. The truth is, that the ignorance which prevails in the inland counties as to any matters connected with foreign parts, and the little means the labouring classes possess of defraying their own expenses, has kept them, except in a few instances, from seeking to go to that distant part of the world, which assuredly holds out to them the brightest prospect, and is most like their own home. They may however rest satisfied that the voyage to Australia is as safe as that to New York, that it is far more pleasant as regards the weather, and that little or no sickness has ever thinned the number of those who have embarked for the Australian colonies. The expense of the voyage is certainly greater than that of a passage to the Canadas, or to the United States, but it is to be hoped that the means of transport will soon be at their command. I would only in this place offer the remarks I conscientiously think the case requires, as one who, having witnessed the happiness of thousands in the land of which he is speaking, would gladly be instrumental in opening the way for thousands more of his countrymen to the same happy destiny. Having been both to Canada and the Australian colonies, if I were asked which of the two I preferred, I should undoubtedly say the

latter. I do not desire to disparage the Canadas by this assertion, for I know that they have advantages in their soil and in the magnificence of their rivers beyond comparison, but Australia, on the other hand, has advantages over our transatlantic possessions, such as her increased distance from England, cannot counterbalance. Her climate, in the first place, is surpassing fine. There the emigrant is spared the trouble of providing against the severities of a Canadian winter. That season passes over his head almost without his knowledge, and the ground, instead of being a broad sheet of snow, is covered with vegetation. Her lands, unencumbered by dense forests, are clear and open to the plough, or are so lightly wooded as to resemble a park, rather than a wild and untouched scene of nature. Instead of having to toil with the saw and the axe to clear his ground before he can cultivate it, and instead of consuming a year's provisions before he can expect any return, he can there run the plough from one end to the other of his enclosures, without meeting a stone or a root to turn its point, and at once reap the produce of the soil. These surely are advantages of no ordinary kind, and, if the expense of a voyage to the Australian colonies is greater than that to America, I cannot but think that the contingent expenses to which the Canadian or Union emigrant is put, before he can consider himself as finally settled down, must necessarily exceed those of the Australian.

As before observed, the aspect of South Australia, and indeed of many parts of the neighbouring colonies, is essentially English. There, as in England, you see the white-washed cottage, and its little garden stocked with fruit trees of every kind, its outward show of cleanliness telling that peace and comfort are within. To sever oneself from our kindred, and to abandon the dwelling of our fathers, is a sacrifice of no imaginary magnitude, whether we are rich or poor, and the prospects of reward should be bright indeed to compensate for it. I conclude that it has been to combat the reluctance in the lower orders to leave their homes, that inducements too highly coloured in many instances, have been held out to them, the consequence of which has been that many, whose expectations were excited, suffered proportionate disappointment at the outset of their career as emigrants. Convinced of the injurious tendency of such a practice, and regarding it as a culpable and cruel mockery of misfortunes, which, having been unavoidable, claim our best sympathies, I should not have said so much as I have done on this important subject, had I not felt justified in so doing. The reader may rest assured that to the sober, the honest, and the industrious, the certainty of success in South Australia is beyond all doubt. An individual with these qualities may experience disappointment on landing, but he must recollect that this is always a period of anxiety, and the circumstances in which he first finds himself placed, may

not come up to his expectations; his useful qualities and regular habits cannot be immediately known, and we seldom alter our condition, even for the better, without some trouble or vexation.

I have, in the course of my remarks, in my recommendation of the Australian colonies as being favourable to the views of emigrants, given a preference to South Australia. I have done so because I am better acquainted with its condition than with that of either of the other settlements. Of it I have spoken as to what I know; but, of the others, to a great extent, from hearsay. The character however of those colonies needs no recommendation from me. As far as its pastoral and agricultural capabilities go, I believe Port Phillip to be as fine a district as any in the world. The advantages indeed of the Australian colonies must be nearly equal, from the fact that the pursuits of their respective inhabitants are so nearly the same. Local circumstances may give some parts of the continent a preference over others, but, as points of emigration there is little choice. The southern portions are not subject to the withering droughts to which parts of the eastern coast are liable, and may be preferred on that account, but still there are districts in New South Wales as unexceptionable as any in Port Phillip or South Australia.

It now remains to make some observations on the present state of society in the last-mentioned colony; for it appears to me, that in order to give a

correct picture of it, some notice on that head is required. I think too, I am the more called upon to do so, because many very mistaken notions are held of it. As in most of Her Majesty's possessions, so in South Australia, the Government officers form a prominent, and I may say, distinct class. Colonel Robe, the late Governor of the province, made Government House the seat of the most unmeasured hospitality, which he exercised beyond the point to which there was any public call upon him. His table was covered with every delicacy the season could afford, his wines were of the very best, and there was a quiet but effective manner about him, which gained universal esteem. As a soldier, he was exceedingly particular in the order and appearance of his establishment, nor was there anything wanting to complete the comfort of it. The number of the colonists who assembled round him occasionally, was from 50 to 60; on more public festive occasions they exceeded 300, and I may add, that on both, the scene differed not in the slightest degree from that of similar parties in this country, save that there was less of formality in the interchange of friendly communications between the visitors. Except also in giving a tone to society, and setting an irreproachable example to the community, the officers of the Government are exceedingly retired, their salaries are too limited to enable them to follow the example of their chief.

They live quietly, and as gentlemen, are ever happy to see their friends, but public parties are seldom given by P lence indeed calls upon them to n f displays, which they cannot and the consequence was, that a warmer intimacy existed in their quiet intercourse with each other, than could have sprung from more formal entertainments.

The truth is, the salaries of the Government officers, bear no proportion to the means of the majority of the settlers, who have risen into affluence from a combination of circumstances, that have been unprecedented in the history of colonization. There are few private individuals in the province, who have not, at one time or other, benefited by some speculation, but I am not aware that any one of the Government officers have any private interests in the colony, if I except the possession of a section or two of land, on which they have built and reside, nor do I know that any of them have allowed a spirit of speculation to interfere with public duties.

Amongst the leading or upper classes of society, there are many very estimable persons. I do not mention names, but my recollection will bear me back to the many happy days I have spent with them, and certainly any one not desiring an extended circle of acquaintance could no where, whether amongst gentlemen or the ladies, find individuals

more worthy of his regard or friendship than in the still limited society of South Australia.

Many of the tradesmen having succeeded in business, or acquired an independence from their interests in the mines, have retired, and live in suburban residences, which they have built in well selected situations, and with considerable taste. Attached to the customs of Home, many of the citizens of Adelaide possess carriages of one kind or another, and are fond of devoting their Sunday evenings to visiting places in the neighbourhood. As regards the lower classes, I do not think there is in any of Her Majesty's possessions, a greater amount of mechanical genius and enterprise than amongst the mechanics of South Australia. I speak confidently on this head, since I have had very many points referred to me, which have long satisfied me of this fact.

There are many societies in South Australia, of which the lower orders are members, all of them tending to promote social interests. The order of Odd Fellows is prominent amongst these, and spreads a feeling throughout all classes which cannot fail of doing good, for the charities of this order are extensive, and it supports a well-attended school. Taking then the lower orders of the province in the aggregate, they may be said to be thoroughly English, both in their habits and principles.

In speaking of the upper classes I did not notice

a portion of them included under the denomination of the "Squatters." It is a name that grates harshly on the ear, but it conceals much that is good behind it; they in truth are the stockholders of the province, those in whom its greatest interests would have been vested if the mines had not been discovered. Generally speaking, the squatters are young men who, rather than be a burthen on their families, have sought their fortunes in distant lands, and carried out with them almost to the Antipodes the finest principles and feelings of their forefathers. With hearts as warm as the climate in which they live, with a spirit to meet any danger, and an energy to carry them through any reverse of fortune, frank, generous, and hospitable, the squatters of the Australian colonies are undoubtedly at the head of their respective communities, and will in after days form the landed, as they do now the pastoral interests, from whom every thing will be expected that is usually required of an English country gentleman. Circumstanced as they are at the present moment, most of them leading a solitary life in the bush, and separated by such distances from each other as almost to preclude the possibility of intercourse, they are thus cut off as it were from society, which tends to give them feelings that are certainly prejudicial to their future social happiness, but I would fain hope that the time is coming round when these gentlemen will see that they have it very much in

their own power to shorten the duration of many of the sacrifices they are now called upon to make, and that they will look to higher and to more important duties than those which at present engage their attention.

The views taken by the late Sir George Gipps of the state of society in the distant interior of New South Wales is perfectly correct, nor can there be any doubt but that it entails evils on the stock-holders themselves which, on an abstract view of the question, I cannot help thinking they have it in their power to lessen, or entirely to remove, when an influx of population shall take place; but, however regular their establishments may be, they cannot, as single men, have the same influence over those whom they employ, or the settlers around them, as if they were married; for it is certainly true, that the presence of females puts a restraint on the most vicious, and that wherever they are, especially in a responsible character, they must do good. I do not know anything, indeed, that would more conduce to the moral improvement of the settlers, and people around them, than that squatters should permanently fix themselves, and embrace that state in which they can alone expect their homes to have real attractions. That they will ultimately settle down to this state there cannot, I think, be a doubt, and however repugnant it may be to them at the present moment to rent lands, on the

occupation of which any conditions of purchase is imposed, I feel assured that many of the squatters will hereafter have cause to thank the Secretary of State for having anticipated their future wants, and enabled them to secure permanent and valuable interests on such easy terms. Nothing, it appears to me, can be more convincing in proof of the real anxiety of Earl Grey for the well being of the Australian provinces than the late regulations for the occupation of crown lands.

I believe I am right in stating that every word of those regulations was penned by Earl Grey himself, and certainly, apart from local prejudices, I am sure a disinterested person would admit the care and thought they evince, and how calculated they are to promote the best interests of the squatters, and the future social and moral improvement of the people under their influence. There seems to me to run throughout the whole of these regulations an earnest desire to place the stockholder on a sure footing, and to remove all causes of anxiety arising from the precarious tenure upon which they formerly held property.

There is another division of the population of South Australia I have hitherto omitted to mention, I mean the German emigrants. They now number more than 2000, and therefore form no inconsiderable portion of the population of the province. These people have spread over various districts, but

still live in communities, having built five or six villages.

The Germans of South Australia are quiet and inoffensive, frugal and industrious. They mix very little with the settlers, and, regarded as a portion of the community, are perhaps too exclusive, as not taking a due share in the common labour, or rendering their assistance on occasions when the united strength of the working classes is required to secure a general good—as the gathering in of the harvest, or such similar occasions. Their religious observances are superintended by different pastors, all of them very respectable persons. The oldest of these is Mr. Kavel, to whom the Germans look with great confidence, and hold in deserved esteem. Many of the Germans have been naturalized, and have acquired considerable property in various parts of the province, but very few have taken to business, or reside in Adelaide as shopkeepers. The women bring their market or farm produce into the city on their backs, generally at an early hour of the morning, and the loads some of them carry are no trifle. Here, however, as in their native country, the women work hard, and certainly bear their fair proportion of labour. The houses of the Germans are on the models of those of their native country, and are so different in appearance from the general style, as to form really picturesque objects. There is nowhere about Adelaide a prettier ride than through the village of Klemzig, on the right bank

of the Torrens, that having been the first of the German settlements. The easy and unmolested circumstances of these people should make them happy, and lead them to rejoice that in flying from persecution at home they were guided to such a country as that in which they now dwell, and I have no doubt that as a moral and religious people, they are thankful for their good fortune, and duly appreciate the blessings of Providence.

My anxiety to raise the character of the natives of Australia, in the eyes of the civilized world, and to exhibit them in a more favourable light than that in which they are at present regarded, induces me, before I close these volumes, to adduce a few instances of just and correct feeling evinced by them towards myself, which ought, I think, to have this effect and to satisfy the unprejudiced mind that their general ideas of right and wrong are far from being erroneous, and that, whatever their customs may be, they should not, as a people, occupy so low a place in the scale of human society, as that which has been assigned to them. I am quite aware that there have been individual instances of brutality amongst them, that can hardly be palliated even in savage life—that they have disgusting customs — that they are revengeful and addicted to theft. Still I would say they have redeeming qualities; for the first, I would fain believe that the horrors of which they have been guilty, are local; for the last, I do not see that they are worse than other

uncivilized races. Treachery and cunning are inherent in the breast of every savage. I question, indeed, if they are not considered by them as cardinal virtues; but, admitting the Australian native to have the most unbridled passions, instances can be adduced of their regard for truth and honesty, that ought to weigh in any general estimate we may form of their character. No European living, not even Mr. Eyre, has seen so many of the Aborigines of the Australian continent as myself; and that, too, under circumstances when strife might have been expected; and no man certainly has had less reason to complain of them. If my party has ever been menaced by these people, if we have ever had their spears raised in hundreds against us, it has been because they have been taken by surprise, and have acted under the influence of fear. If I had rushed on these poor people, I should have received their weapons, and have been obliged to raise my arm against them, but, by giving them time to recover from their surprise, allowing them to go through their wonted ceremonies, and, by pacific demonstrations, hostile collisions have been avoided. If I had desired a conflict, the inclination might have been indulged without the fear of censure, but I saw no credit, no honour to be gained by such a course, and I therefore refrained. I can look back to my intercourse with the Australian aborigines, under a consciousness that I never injured one of them, and that the cause of

humanity has not suffered at my hands ;—but, I am travelling out of my proper course, and beg the reader to excuse me, it is for him, I allow, not for me, to draw such conclusions.

I have said, that I thought I could adduce instances of a regard for justice and honesty that would weigh in favour of the Australian native. As one instance, let me ask, if anything could have been more just, than the feeling which prompted the native to return the blanket one of his tribe had stolen from the camp on the banks of the Castlereagh, as detailed in my former work, vol. i. page 141. The man who restored the lost property was apprehensive of danger, from the fact of his having come armed, and from his guarded and menacing attitude when the soldier approached to ascertain what he wanted. Had he been the father of the thief, we could only have said that it was a singular proof of honest pride by a single individual, but such was not the case, the whole tribe participated in the same feeling, for we learnt from them, that the thief had been punished and expelled their camp. Could anything have been more noble than the conduct of the native, who remained neuter, and separated himself from them, when the tribes attempted to surprise my camp on the Murrumbidgee, because I had made him presents as I went down that river, vol. ii. page 212. On the other hand, could anything have been more just than the punishment inflicted on the boy who

stole my servant Davenport's blanket at Fort Grey? as mentioned in the present work; or the decision of the two sons of the Boocolo of Williorara, as regarded the conveyance of our letter-bag to Lake Victoria? Here are broad instances of honesty that would do credit to any civilized nation. Surely men, who can so feel, should not be put lowest in the scale of the human race? It is true that all attempts to improve the social condition of the Australian native has failed, but where is the savage nation with which we have succeeded better? The natives of New Zealand will perhaps be the only instance, in modern times, of a barbarous race surviving the introduction of civilization amongst them. Without venturing to compare the natives of Australia, to a people so much superior, I would only claim for them a due share of consideration. All I can say is that they have submitted to our occupation of their country with a forbearance that commands our best sympathies.

It will be borne in mind, that I have not here spoken of their personal appearance. That that generally is against them, cannot be doubted. If there is any truth in phrenology, they must have their share of the brutal passions. The whole appearance of the cranium indeed, would lead to the conclusion that they possess few of the intellectual faculties; but, in a savage state, these are seldom called forth. They are, nevertheless, capable of strong attachment, are indulgent parents, and cer-

tainly evince a kindly feeling towards their relations, are improvident and generous, having no thought for the morrow. On the other hand, they are revengeful and crafty, and treat their wives with much harshness, imposing on them the burthen of almost everything: that man being considered the richest who has the greatest number, because he can sit in his hut, and send them out to procure food.

I think it is agreed on all hands that the natives of Australia are sprung from the same parent stock. Their personal appearance and customs, if not their dialects, shew this. From what race they originally sprang it is more difficult to determine, for there is not one of the great families into which the human race has been divided, with which they may properly be classed. With such features as they generally possess, in the flattened nose, thick lip, and overhanging brow, one can hardly fancy that they would be good looking, but I certainly have seen very good looking men amongst them—I may say tribes, indeed, on the Darling for instance, and on the Murrumbidgee, (see page 53, vol. ii. of my last work.) The men on Cooper's Creek were fine rather than handsome. Generally speaking, the natives have beautiful teeth, and their eye, though deep sunk, is full of fire. Although their muscular development is bad, they must have a very remarkable strength of sinew, or they could not otherwise raise themselves, as they do, on so slender a footing in climbing up the trees, and in many other

occupations. I have read in several authors that the natives of Australia have woolly hair. This is a mistake; their hair is as fine and as curly as that of an European, but its natural beauty is destroyed by filth and neglect. Nothing can prove its strength more than the growth of their beards, which project from their chins, and are exceedingly stiff.

In many places the natives have but a scanty and precarious subsistence, which may in some measure account for the paucity of their numbers in some localities. In many parts of the country in which I have been I feel satisfied they can seldom procure animal food, as they would not otherwise resort to the use of some things which no time could, I should imagine, make palateable. Their dexterity at the chase is very great, although in hunting the kangaroo they become so nervous that they frequently miss their mark. I have seen them sink under water and bring up a fish writhing on the short spear they use on such occasions, which they have struck either in the forehead, or under the lateral fin, with unerring precision. Still some of our people come pretty close to them in many of their exercises of the chase, and the young settlers on the Murray very often put them to the blush. At the head of them is Mr. Scott, Mr. Eyre's companion, who has now succeeded him in the post at Moorundi. There is not a native on the river so expert in throwing the spear, in taking kangaroo or fish, or in the canoe, as

he is. His spear is thrown with deadly precision, and he has so mixed with the natives, that he may be said to be one of themselves, having the most unbounded influence over them, and speaking their language as fluently as themselves. Mr. Scott is at the same time very firm and decided, and is exceedingly respected by the settlers on the Murray. Under such circumstances it is to be hoped he will emulate Mr. Eyre and effect much good among his sable friends. Their devotion and attachment to him is very remarkable, and every native on the Murray knows "Merrili," as he is called.

One great cause of the deaths amongst the Aborigines is their liability to pulmonary diseases from being constantly in the water. They are much annoyed by rain, nor will any thing induce them to stir during wet weather, but they sit shivering in their huts even in the height of summer. There is no people in the world so unprovided against inclemency or extremes of weather as they are. They have literally nothing to cover them, to protect them from the summer heat or the winter's cold; nor would any charity be greater than to supply these poor people with clothing. A few blankets, a few Guernsey shirts, and woollen trowsers, would be to them a boon of the first importance, and I would that my voice in their favour could induce the many who are humane and charitable here to devote a small portion of that which they bestow in works and purposes of charity to

think of these children of the desert. It is only by accustoming them to comforts, and to implements which they cannot afterwards do without, to supersede as it were their former customs, that we can hope to draw them towards civilized man and civilization; for what inducement has the savage with his wild freedom and uncontrolled will, to submit to restraint, unless he reap some advantage?

The yearly and monthly distribution of blankets and of flour to the natives at Moorundi is duly appreciated. They now possess many things which they prefer to their own implements. The fish-hooks they procure from the Europeans are valued by them beyond measure, since they prevent the necessity of their being constantly in the water, and you now see the river, at the proper season, lined by black anglers, and the quantity of fish they take is really astonishing, and those too of the finest kinds. I once saw Mr. Scott secure a Murray cod, floating on the top of the water, that weighed 72lbs. This beautiful and excellent fish is figured in Mitchell's first work. It is a species of perch, and is very abundant, as well as several others of its own genus, that are richer but smaller; the general size of the cod varying from 15lbs. to 25lbs.

The manners and customs of the natives have been so well and so faithfully recorded by Mr. Eyre that I need not dwell on them here. My views have been philanthropic, my object, to explain the manner in which I have succeeded in communicating

with such of them as had never before seen Europeans, in order to ensure to the explorer, if possible, the peaceable results I myself have experienced. There are occasions when collisions with the natives are unavoidable, but I speak as to general intercourse. I feel assured no man can perform his duty as an explorer, who is under constant apprehension of hostility from the people through whose country he is passing.

The province of South Australia could never at any time have been thickly inhabited. There are some numerous tribes on the sea-coast at the head of the Gulfs and in Encounter Bay, as well as on the Murray River, but with the exception of a few scattered families on the northern hills, and in the scrub, the mountain ranges are, and it appears to me have been, almost uninhabited. There are no old or recent signs of natives having frequented the hills, no marks of tomahawks on the trees, or of digging on the flats. The Mount Lofty ranges, indeed, are singularly deficient of animal life, and seem to be incapable of affording much subsistence to the savage, however luxuriant and beneficial the harvest they now yield.

The Adelaide tribe is not numerous; they occupy a portion of the Park lands, called the native location, and every encouragement has been given them to establish themselves in comfort on it, but they prefer their wild roving habits to any fixed pursuit. Nevertheless, they are variously employed by

the townspeople, in carrying burthens, in cutting up wood, in drawing water, and similar occupations; and, independently of any assistance they may receive from the Government, earn an immense quantity of food from the citizens. The natives properly belonging to the Adelaide tribe are all more or less clothed, nor are they permitted by the police to appear otherwise, and as far as their connection with the settlers goes, they are fast falling into habits of order, and understand that they cannot do any thing improper with impunity.

The Murray tribe, as well as the tribes from the south, frequently visit their friends near the capital, and on such occasions some scene of violence or dispute generally ensues. Frequently the abduction of a lubra, or of an unmarried female of another tribe, brings about a quarrel, and on such occasions some angry fighting is sure to follow; and so long as that custom remains, there is little hope of improvement amongst them. The subject of ameliorating their condition is, however, one of great difficulty, because it cannot be done without violating those principles of freedom and independence on which it is so objectionable to infringe; but when a great ultimate good is to be obtained, I cannot myself see any objection to those restraints, and that interference which should bring it about. There is nowhere, not even in Sydney, more attention paid to the native population than in South Australia, and if they stand a chance of improvement

it is there. Whilst every kindness is shewn to the adult portion, the children are under the direct care of the Government. There is, as I have elsewhere stated, a school, at which from thirty to forty boys and girls attend. Nothing can be more regular or more comfortable than this institution. The children are kindly treated, and very much encouraged, and really to go into it as a visitor, one would be disposed to encourage the most sanguine expectations of success. As far as the elementary principles of education go, the native children are far from deficient. They read, write, and cypher as well as European children of their own age, and, generally speaking, are quiet and well behaved; but it is to be regretted that, as far as our experience goes, they can advance no farther; when their reason is taxed, they fail, and consequently appear to be destitute of those finer qualifications and principles on which both moral feeling and social order are based. It is however questionable with me whether this is not too severe a construction to put on their intellect, and whether, if the effect of ancient habits were counteracted, we should find the same mental defect.

At present, the native children have free intercourse with their parents, and with their tribe. The imaginations of the boys are inflamed by seeing all that passes in a native camp, and they long for that moment, when, like their countrymen, they will be free to go where they please, and to join in the hunt or the fray. The girls are told that they are be-

trothed, and that, at a certain age, they must join their tribe. The voice of Nature is stronger even than that of Reason. Why therefore should we be surprised at the desertion of the children from the native schools? But it will be asked—What is to be done? The question, as I have said, is involved in difficulty, because, in my humble opinion, the only remedy involves a violation, for a time at all events, of the natural affections, by obliging a complete separation of the child from its parents; but, I must confess, I do not think that any good will result from the utmost perseverance of philanthropy, until such is the case, that is, until the children are kept in such total ignorance of their forefathers, as to look upon them as Europeans do, with astonishment and sympathy. It may be argued that this experiment would require too great a sacrifice of feeling, but I doubt this. Besides which, it is a question whether it is not our duty to do that which shall conduce most to the benefit of posterity. The injury, admitting it to be so, can only be inflicted on the present generation, the benefit would be felt to all futurity. I have not, I hope, a disposition for the character of an inhuman man, and certainly have not written thus much without due consideration of the subject, but my own experience tells me we are often obliged to adopt a line of conduct we would willingly avoid to ensure a public good.

It will not then, I trust, be thought that I have ventured to intrude this opinion on the public, with

any other views than those which true philanthropy dictates. I am really and sincerely interested in the fate of the Australian Aborigine, and throw out these suggestions, derived from long and deep practical experience, in the ardent hope that they may help to produce the permanent happiness of an inoffensive and harmless race.

MR. KENNEDY'S

SURVEY OF THE RIVER VICTORIA.

MR. KENNEDY'S SURVEY OF THE RIVER VICTORIA.

WHILST I was endeavouring to penetrate into the heart of the Australian Continent, there were two other Expeditions of Discovery engaged in exploring the country to the eastward of me. Dr. Leichhardt, an account of whose successful and enterprising journey from Moreton Bay to Port Essington is already before the public, was keeping the high lands at no great distance from the coast, and Sir Thomas Mitchell, the Surveyor-General of New South Wales, was traversing the more depressed interior, between my own and Dr. Leichhardt's tracks. The distance at which Dr. Leichhardt passed the extreme westerly point gained by me was 600 geographical miles, and his distance from my extreme easterly one was 420 miles; Sir Thomas Mitchell's distance from my extreme west, being about 380 miles, and that from my last position, (on Cooper's Creek), about 260. He had been traversing a country of great richness and fertility, a country, indeed, such as he had never before seen, and in a despatch addressed to the Governor of New South Wales, thus describes it and the river he discovered on the occasion :—

"On ascending the range early next morning, I saw open downs and plains with a line of river in the midst, the whole extending to the N.N.W., as far as the horizon. Following down the little stream from the valley in which I had passed the night, I soon reached the open country, and during ten successive days I pursued the course of that river, through the same sort of country, each day as far as my horse could carry me, and in the same direction again approaching the Tropic of Capricorn. In some parts the river formed splendid reaches, as broad and important as the river Murray; in others it spread into four or five branches, some of them several miles apart. But the whole country is better watered than any part of Australia I have seen, by numerous tributaries arising in the downs.

"The soil consists of rich clay, and the hollows give birth to numerous water-courses, in most of which water was abundant. I found at length that I might travel in any direction, and find water at hand, without having to seek the river, except when I wished to ascertain its general course, and observe its character. The grass consists of Panicum and several new sorts, one of which springs green from the old stem. The plains were verdant indeed, the luxuriant pasturage surpassed in quality, as it did in extent, any thing I had ever seen. The Myall-tree and salt bush, (Acacia pendula and salsolæ), so essential to a good run, are also there. New

birds and new plants marked this out as an essentially different region from any I had previously explored; and although I could not follow the river throughout its long course at that advanced season, I was convinced that its estuary was in the Gulf of Carpentaria; at all events the country is open and well watered for a direct route thereto. That the river is the most important of Australia, increasing as it does by successive tributaries, and not a mere product of distant ranges, admits of no dispute; and the downs and plains of Central Australia, through which it flows, seem sufficient to supply the whole world with animal food. The natives are few and inoffensive. I happened to surprise one tribe at a lagoon, who did not seem to be averse that such strangers were in that country; our number being small, they seemed inclined to follow us. I crossed the river at the lowest point I reached, in a great southerly bend in long. 144° 34′ east, lat. 24° 14′ south, and from rising ground beyond the left bank, I could trace its downward course far to the northward. I saw no Callitris (Pine of the colonists) in all that country, but a range, shewing sandstone cliffs appeared to the southward, in long. 145° and lat. 24° 30′ south. The country to the northward of the river, is, upon the whole, the best, yet, in riding ninety miles due east from where I crossed the southern bend, I found plenty of wa , and excellent grass, a red gravel there approaches t river, throwing it off to the northward. Rar-

extending N. N. W. were occasionally visible from the country to the northward."

Sir Thomas Mitchell's position at his extreme west was more than 460 miles from the nearest part of the Gulf of Carpentaria; he was in a low country, and on the banks of a river which had ceased to flow. Whatever the local appearances might have been, which led the Surveyor-General to conclude that it would reach the northern coast, I do not know, but notwithstanding the favourable report he made of it, I never for a moment anticipated that this river would do so; I felt assured, indeed, that however promising it might be, it would either enter the Stony Desert or be found to turn southward, and be lost amongst marshes and lagoons. The appearance of Cooper's Creek might have justified my most sanguine expectations, but I was too well aware of the character of Australian rivers, and had seen too much of the country into which they fall, to trust them beyond the range of sight. My natural course on the discovery of Cooper's Creek would have been to have traced it downwards, but I was not unmindful that I should keep it between myself and the track on which Mr. Browne and I had last returned from the north-west interior, in pursuing the northerly course I intended, and I consequently felt satisfied, after a little consideration, that if it continued northerly, I should strike it again; if not, that it would either spread over the Stony Desert, or fall short of it altogether.

On making this discovery, therefore, my hopes were centered in its upward, not its downward course, for judging that in crossing the Stony Desert, I had crossed the lowest part of the interior, my anticipations of finding any important river in the central regions of Australia were destroyed. My endeavour had been, not only to examine the country through which I was immediately passing, but to deduce from it, what might be its more extended features, and to put together such facts as I reasonably could, to elucidate the past and present state of the continent. In the course of my investigations, I saw grounds for believing that the fall of the interior was from north to south and from east to west. However much the more northerly streams might hold to the northward and westward, whilst in the hilly country, I felt assured, that as soon as they gained the depressed interior, they would double round to the southward, and thus disappoint the explorer. Sir Thomas Mitchell himself tells us, that every river he traced on his recent journey, excepting the Victoria, disappointed him, by turning to that point and entering a sandy country. It is evident, indeed, upon the face of Sir Thomas Mitchell's journal, that there are no mountains in that part of the interior, in which the basins of the Victoria must lie, or from which a river could emanate, of such a character, as to lead even the most sanguine to expect, that after having ceased to flow, it would continue onwards for another 460 miles through such a country. From the favour-

able nature of the Surveyor-General's report, however, it was deemed a point of great importance to ascertain the further course of the river, and Mr. Kennedy, a young and intelligent officer, who had accompanied Sir Thomas Mitchell into the interior, was ordered on this interesting service. Before I make any observations, however, on the result of his investigations, I shall give the following extract from his letter to the Colonial Secretary, on his return from the interior.

"Having reached the lowest point of the Victoria attained by the Surveyor-General, I was directed to pursue the river, and determine the course thereof as accurately as my light equipment, and consequent rapid progress, might permit. Accordingly, on the 13th of August we moved down the river, and at 4½ miles crossed over to its proper right bank; the Victoria is there bounded on the south by a low sand-stone ridge, covered with brigalow; and on the north by fine grassy plains, with here and there clumps of the silver leaf brigalow; at seven miles we passed a fine deep reach, below which the river is divided into three channels, and inclines more to the southward; at thirteen miles we encamped upon the centre channel; the three were about half a mile apart, the southern one under the ridge being the deepest; we found water in each, but I believe it to be only permanent in the southernmost, which contains a fine reach, one mile below our encampment, in latitude 24° 17′ 34″; an intelligent native, whom we met there with his family on our return, gave me the name of the river, which they call Barcoo. I also obtained from him several useful words, which he seemed to take a pleasure in giving, and which I entered in my journal.

"Between the parallels of 24′ 17″ and 24′ 53″, the river preserves generally a very direct course to the south-south-west, and

maintains an unvaried character, although the supply of water greatly decreases below the latitude of 24° 25′. It is divided into three principal channels, and several minor watercourses, which traverse a flat country, lightly timbered by a species of flooded box; this flat is confined on either side by low sand-stone ridges, thickly covered with an acacia scrub. In latitude 24° 50′ we had some difficulty in finding a sufficiency for our own consumption, but after searching the numerous channels, the deep (though dry) lagoons and lakes formed there by the river, we at length encamped at a small water-hole in latitude 24°52′ 55″ and longitude 144° 11′ 26″.

"Being aware that the principal view of the Government in sending me to trace the Victoria, was the discovery of a practical route to the Gulf of Carpentaria, I then began to fear that I should be unable, with my small stock of provisions, to accomplish the two objects of my Expedition. My instructions confined me to the river, which had now preserved almost without deviation a south-south-west course for nearly a hundred miles; the only method which occurred to me, by the adoption of which I might still hope to perform all that was desired, was to trace the river with two men as far as latitude 26°, which the maintenance of its general course would have enabled me to do in two days, and then to hasten back to my party, to conduct them to the extreme northern point attained by the Victoria, and endeavour to prolong the direct route carried that far, from Sydney towards the Gulf of Carpentaria, by Sir Thomas Mitchell.

"With this intention I left the camp on the 20th of August, and at twelve miles found several channels united, forming a fine reach, below which the river takes a turn to the west-south-west, receiving the waters of rather a large creek from the eastward, in latitude 25° 3′ 0″. In latitude 25° 7″, the river having again inclined to the southward, impinges upon the point of a low range on its left, by the influence of which it is turned in one well watered channel to the west and west by north, for nearly thirty miles; in that course the reaches are nearly con-

nected, varying in breadth from 80 to 120 yards; firm plains of a poor white soil extend on either side of the river; they were rather bare of pasture, but they are evidently in some seasons less deficient of grass. In latitude 25° 9′ 30″, and longitude about 143° 16′, a considerable river joins the Victoria from the north-east, which I would submit may be named the "Thomson," in honour of E. Deas Thomson, Esquire, the Honourable the Colonial Secretary. It was on one of the five reaches in the westerly course of the Victoria that I passed the second night; the river there measured 120 yards across, and seemed to have a great depth; the rocks and small islets which here and there occurred in its channel giving it the semblance of a lasting and most important river; this unexpected change, however, both in its appearance and course, caused me to return immediately to my camp for the purpose of conducting my party down such a river whithersoever it should flow.

"On the 25th August, we resumed our journey down that portion of the Victoria above described, and made the river mentioned from north-east three miles above its junction; following it down we found an unbroken sheet of water in its channel, averaging fifty yards in breadth; we forded it at the junction, and continued to move down the Victoria, keeping all the channels, into which it had again divided, on my left. At about one mile the river there turns to the south-south-west and south, spreading over a depressed and barren waste, void of trees or vegetation of any kind, its level surface being only broken by small doones of red sand, resembling islands upon the dry bed of an inland sea, which, I am convinced, at no distant period did exist there.

"On the 1st September, we encamped upon a long, though narrow, reach in the most western channel, at which point a low sandstone ridge, strewed with boulders, and covered with an acacia scrub, closes upon the river. This position is important, as a small supply of grass will, I think, in most seasons, be found on the bank of the river, when not a blade, perhaps,

may be seen within many miles above or below: my camp, which I marked $\frac{K}{IV}$ was in latitude 25° 24′ 22″, longitude 142° 51′. Beyond camp IV the ridge recedes, and the soil becomes more broken and crumbling; our horses struggled with difficulty over this ground to my camp, at a small water-hole, in latitude 25° 43″ 44′, where I found it necessary to lighten some of their loads by having buried 400 lbs. flour, and 70 lbs. sugar, still retaining a sufficient supply to carry us to Captain Sturt's farthest, on Cooper's Creek, to the eastward, (to which point I was convinced this river would lead me) and from thence back to the settled districts of New South Wales; which was all I could then hope to accomplish. At about sixteen miles further, the ground becoming worse, so that our horses were continually falling into the fissures up to their hocks, I was compelled to leave 270 lbs. more of flour and sugar at my camp of the 4th September, in latitude 25° 51′, at another small water-hole, found in the bed of a very dry and insignificant channel; here a barren sandstone range again impedes the river in its southerly course, and throws it off to the westward, thus causing many of its channels to unite and form a reach of water in latitude 25° 54′; this, the lowest reach we attained, I did not discover until my return, having found a sufficient supply in a channel more to the westward. In latitude 25° 55′, and longitude, by account, 142° 23′, the river, having rounded the point of the range which obstructs it, resumes its southerly course, spreading in countless channels over a surface bearing flood marks six and ten feet above its present level; this vast expanse is only bounded to the eastward by the barren range alluded to, which, ending abruptly, runs parallel with the river at a distance varying from four to seven miles. On the 7th September, I encamped upon a small water-hole in 26° 0′ 13″, in the midst of a desert not producing a morsel of vegetation; yet so long as we could find water, transient as it was, I continued to push on with the hope of reaching, sooner or later, some grassy spot, whereon by a halt I might refresh the horses; however, that hope was destroyed at the close of the

next day, for although I had commenced an early search for water when travelling to the southward, with numerous channels on either side of me, I was compelled at length to encamp in latitude 26° 13′ 9″, and longitude, by account, 142° 20′, on the bank of a deep channel, without either water or food for our wearied horses. The following morning, taking one man and Harry with me, we made a close search down the most promising watercourses and lagoons, but upon riding down even the deepest of them, we invariably found them break off into several insignificant channels, which again subdivided, and in a short distance dissipated the waters, derived from what had appeared the dry bed of a large river, on the absorbing plain; returning in disappointment to the camp, I sent my lightest man and Harry on other horses to look into the channels still unexamined, but they also returned unsuccessful. We had seen late fires of the natives at which they had passed the night without water, and tracked them on their path from lagoon to lagoon in search of it; we also found that they had encamped on some of the deepest channels in succession, quitting each as it had become dry, having previously made holes to drain off the last moisture. My horses were by this time literally starving, and all we could give them was the rotten straw and weeds which had covered some deserted huts of the natives. Seeing, then, that it would be the certain loss of many, and consequently an unjustifiable risk of my party to attempt to push farther into a country where the aborigines themselves were at a loss to find water, I felt it my imperative duty to at once abandon it. I would here beg to remark, that although unsuccessful in my attempt to follow it that far, from the appearance of the country, and long-continued direction of the river's course, I think there can exist but little doubt that the "Victoria" is identical with Cooper's Creek, of Captain Sturt; that creek was abandoned by its discoverer in latitude 27° 46′, longitude 141° 51′, coming from the north-east, and as the natives informed him, "in many small channels forming a large one;" the lowest camp of mine on the Victoria was in latitude 26° 13′ 9″, longitude 142° 20′; the river in several channels trending due

south, and the lowest point of the range which bounds that flat country to the eastward, bearing south 25° east; Captain Sturt also states that the ground near the creek was so blistered and light that it was unfit to ride on; but that before he turned, he had satisfied himself that there was no apparent sign of water to the eastward.

Having marked a tree $\frac{EK}{1847}$ we commenced our return journey along the track at two P.M. of the 9th of September; at eight miles I allowed one of the horses to be shot; for being an old invalid, and unable to travel further, he must have starved if left alive. At thirteen miles we reached the water. Some while after dark the following day we made our next camp; but it was with much difficulty that my private horse and two or three others were brought to water, one being almost carried by three men the latter part of the day. Upon discovering the reach, in latitude 25° 54′, near the range, and finding a little grass in the channel about the water, I gave the horses two days' rest. My camp on the reach is marked $\frac{K}{III.}$; it is in latitude 25° 55′ 37″, longitude, by account, 142° 24′; the variation of the compass 8° east; water boiled at 214°, the temperature of the air being 64°. On the 14th September we proceeded on our journey, and reached the firm plains beyond the desert. On the 22nd, having halted a day, we again moved on, and arrived within five miles of the carts; on the 7th October, leaving my party on the south channel, I rode to the spot, and found them still safe, although a native had been examining the ground that very morning. Lest he should have gone to collect others to assist him in his researches, I brought my party forward the same evening, had the carts dug out during the night, and at sunrise proceeded to our position of the 4th August on the south channel."

From the above account, which is equally clear and distinct, it would appear, that, just below where the river Alice joins the Victoria, the latter river had already commenced its south-west course,

and that the last thirty miles down which the Surveyor-General traced this river was a *part* of the general south-west course, which it afterwards maintained to the termination of Mr. Kennedy's route, and consequently the latter traveller never had an opportunity of approaching so near the Gulf of Carpentaria as the Surveyor-General had done. Here its channel separates into three principal branches, at half-a-mile apart, and, notwithstanding the promise it had given down to the point, at which he had now arrived, (latitude 24° 52′, and longitude 144° 11′,) having then travelled nearly 100 miles along its banks, Mr. Kennedy had great difficulty in finding water. In consequence indeed, of the unfavourable changes that had taken place in the river, he determined on leaving the party stationary, and proceeding down it with two men to the 26th parallel, whence, if he found that it still held to the south, he proposed returning with the intention of trying to find a practicable route to the Gulf of Carpentaria, in compliance with his instructions, and under an impression, I presume, that the fate of the Victoria would then have been fully determined.

In latitude 25° 3′, the river having changed its course to the W. S. W. was joined by a large creek from the "*eastward.*" In latitude 25° 7′ it was turned by some low sandstone ranges on its left, and trended for thirty miles to the west, and even to the northward of that point, having almost connected ponds of water for that distance, varying in breadth,

from 80 to 120 yards, and being bounded on either side by firm plains of white soil. About 25° 9′ and 143° 16′ the river was joined by a large tributary stream from the *north-east*, to which Mr. Kennedy gave the name of the "Thomson," and encouraged by the favourable changes which had now taken place, he returned for his party with the determination of following so fine a river to the last.

We shall now see how far his anticipations were confirmed, and how far his further investigation of the Victoria river, and his account of the country through which it flows, accords with the description I have given of the dreary region into which I penetrated.

On the 26th of September, Mr. Kennedy having brought down his party, resumed his journey, and crossing the Victoria, struck the N. E. tributary about three miles above its junction with the main stream, and fording at that point, kept on the proper right bank of the Victoria.

"At about a mile," says Mr. Kennedy, "it (the "Victoria) there turns to the S.S.W. and south, "spreading over a depressed and barren waste, void "of trees or vegetation of any kind, its level surface "being only broken by small doones of red sand, like "islands upon the dry bed of an inland sea, which "I am convinced at no distant period did exist "there."

There cannot, I think, be any reasonable doubt, but that Mr. Kennedy had here reached the edge of the great central desert.

Both the river he was tracing, and the country

were precisely similar in character to Cooper's Creek, and the country I had so long been wandering over. The former at one point having a fine deep channel, at another split into numberless small branches, and then spreading over some extensive level without the vestige of a water-course upon it. The country monotonous and sterile, its level only broken by low sandstone hills, or doones of sand, the whole bearing in its general appearance the stamp of a submarine origin.

Mr. Kennedy's last camp on the Victoria was in lat. 26° 13′ 9″ S. and in long. 142° 20′ E.; the most eastern point of Cooper's Creek gained by me was in lat. 27° 46′ S. and long. 141° 51′ E. This longitude, however, was by account, and I may have thrown it some few miles to the eastward; in like manner Mr. Kennedy's longitude being also by account, I believe he may have placed his camp a little to the west of its true position; but, as the two points are now laid down, there is a distance of 98 geographical miles between them, on a bearing of 13° to the east of north. Admitting the identity of the Victoria with Cooper's Creek, of which I do not think there is the slightest doubt, the course of the former in order to join the latter would be south, 13° W. the very course Mr. Kennedy states it had apparently taken up when he left it. "The lowest camp on the Victoria," he says, "was in lat. 26° 13′ 9″, and in long. 142° 20′, the river in several channels trending *due* south." If such is the case I must have misunderstood the signs of the

natives, and been mistaken in my supposition that the vast basin into which I traced it, was the basin of Cooper's Creek, but I had so frequently remarked the rapid and almost instantaneous formation of such features in similar localities, that, I confess, I did not doubt the meaning the natives intended to convey.

There are several facts illustrative of the structure and *lay*, if I may use the expression, of the interior unfolded to us, in consequence of the farther knowledge Mr. Kennedy's exploration has given of that part through which the Victoria flows, which strike myself, who have so deep an interest in the subject, when they might, perhaps, escape the general reader; I have therefore thought it right to advert to them for a moment. He will not, however, have failed to observe, in the perusal of Mr. Kennedy's Report, that excepting where small sandstone ranges turned it to the westward, the tendency of the Victoria was to the *south*. The same fact struck me in reference to the Murray river, as I proceeded down it in 1830. I could not fail to observe its efforts to run away in a southerly direction when not impeded by cliffs or sand-hills. This would seem to indicate, that the dip of the continent is more directly to the south than to the west. There is a line of rocky hills, that turn Cooper's Creek to the latter point immediately to the south-west of the grassy plains on which I supposed it took its
From that point its general direction is to the w

ward for about eighty miles, when it splits into two branches, the one flowing to the north-west, and terminating in the extensive grassy plains described at page 39, Vol. II. of the present work, the other passing to the westward and laying all the country under water during the rainy season, which Mr. Brown and I traversed on our journey to the north-west; the several creeks we discovered on that occasion, being nothing more than ramifications of Cooper's Creek, which thus, like all the other interior rivers of Australia, expends itself by overflowing extensive levels; but instead of forming marshes like the Lachlan, the Macquarie, and the Murrumbidgee, terminates in large grassy plains, which are as wheat-fields to the natives, since the grass-seed they collect from them appears to constitute their principal food.

I have observed in the beginning of this work, that the impression on my mind, before I commenced my recent expedition, was, that a great current had passed southwards through the Gulf of Carpentaria which had been split in two by some intervening obstacle, that one branch of this current had taken the line of the Darling, the other having passed to the westward. Now, it would appear, that the sources of the Victoria are in long. 146° 46′, and we are aware, that the course of that river is to the W.S.W. as far as the 139th meridian; unless, therefore, there is a low and depressed country between the sources of the Victoria, and the coast ranges traversed by Dr. Leichhardt, through which the

southerly current could have passed, my hypothesis, as regards it, is evidently wrong; and such, on an inspection of Sir Thomas Mitchell's map, appears to be the case, as he has marked a line of hills, connecting the basins of the Victoria with the higher ranges traversed by Doctor Leichhardt, nearer the coast. My object being to elicit truth, I have deemed it necessary to call the attention of the reader to this point, because it would appear to argue against the general conclusions I have drawn, since, if there is no apparent outlet, there could not have been any southerly current as I have supposed; whereas, if the features of the country could have justified such a conclusion, the general ones I have formed would have been very considerably strengthened.

Mr. Kennedy's survey of the Victoria establishes the fact, that there is not a single stream or watercourse falling into the main drainage of the continent, from the northward or westward, between the 24th and 34th parallels of latitude, a distance of more than 700 geographical miles—a fact which strongly proves the depressed nature of the northwest interior, and would appear to confirm the opinion already expressed, that the Stony Desert is the great channel into which such rivers as have a sufficiently prolonged course, are ultimately led, and towards which the northerly, and a great portion of the easterly drainage tends. How that singular feature may terminate, whether in an in-

land sea, or as an arid wilderness, stretching to the Great Australian Bight, it is impossible to say. From the general tendency of the rivers to fall to the south, it may be that the Stony Desert, as Mr. Arrowsmith supposes, has some connexion with Lake Torrens, but I think, for reasons already stated, that it passes far to the westward.

It may not be generally known, that Dr. Leichhardt is at this moment endeavouring to accomplish an undertaking, in which, if he should prove successful, he will stand the first of Australian explorers. It is to traverse the continent from east to west, nor will he be able to do this under a distance of more than 5000 miles in a direct line. He had already started on this gigantic journey, but was obliged to return, as his party contracted the ague, and he lost all his animals; but undaunted by these reverses, he left Moreton Bay in December last, and has not since been heard of. One really cannot but admire such a spirit of enterprise and self-devotion, or be too earnest in our wishes for his prosperity. Dr. Leichhardt intends keeping on the outskirts of the Desert all the way round to Swan River, and the difficulties he may have to encounter as well as the distance he may have to travel, will greatly depend on its extent. We can hardly hope for intelligence of this dauntless explorer for two years; but if such a period should elapse without any intelligence of him, I trust there will not those be wanting to volunteer their services in the hope of rendering him

assistance. Our best feelings have been raised to save the Wanderer at the Pole—should they not also be raised to carry relief to the Wanderer of the Desert? The present exploration of Dr. Leichhardt, if successful, will put an end to every theory, and complete the discovery of the internal features of the Australian continent, and when we look at the great blank in the map of that vast territory, we cannot but admit the service that intrepid traveller is doing to the cause of Geography and Natural History, by the undertaking in which he is at present engaged. It is doubtful to me, however, whether his investigations and labours will greatly extend the pastoral interests of the Australian colonies, for I am disposed to think that the climate of the region through which he will pass, is too warm for the successful growth of wool. As I stated in the body of my work, the fleece on the sheep we took into the interior, ceased to grow at the Depôt in lat. 29° 40′, as did our own hair and nails; but local circumstances may account for this effect upon the animal system, although it seems to me that the great dryness of the Australian atmosphere, where the heat is also excessive, as it must be in the interior and juxta-tropical parts of it, would prevent the growth of wool, by drying up the natural moisture of the skin. Nevertheless, if Dr. Leichhardt should discover mountains of any height or extent, their elevated plateaux, like that of the Darling Downs, which is one of the finest pastoral districts of Ne

South Wales, and is in lat. 27½°, would not be liable to the same objections; for I believe no better wool is produced than in that district, and that only there, and in Port Phillip, has the sheep farmer been able to clear his expenses this year. Were it not, therefore, for the almost boundless and still unoccupied tracts of land within the territory of New South Wales, we might look with greater anxiety, as regards the pastoral interests of Australia, to the result of Dr. Leichhardt's labours. At present, however, there seems to be no limit to the extent either of grazing or of agricultural land in New South Wales. The only thing to be regretted is, that the want of an industrious population, keeps it in a state of nature, and that the thousands who are here obtaining but a precarious subsistence, should not evince a more earnest desire to go to a country where most assuredly their condition would be changed for the better.

APPENDIX.

APPENDIX.

ANIMALS.

But few mammalia inhabit Central Australia. The nature of the country indeed is such, that we could hardly expect to find any remarkable variety. The greater part is only tenable after or during heavy rains, when the hollows in the flats between the sandy ridges contain water. On such occasions the natives move about the country, and subsist almost exclusively on the *Hapalotis Mitchellii*, and an animal they call the Talpero, a species of *Perameles*, which is spread over a great extent of country, being common in the sand hills on the banks of the Darling, to the S.E. of the Barrier Range, as well as to the sandy ridges in the N.W. interior, although none were met with to the north of the Stony Desert.

The *Hapaloti* feed on tender shoots of plants, and must live for many months together without water, the situation in which we found them precluding the possibility of their obtaining any for protracted intervals. They make burrows of great extent, from which the natives smoke them, and they sometimes procure as many as twelve or eighteen from one burrow. This animal is grey, the fur is exceedingly soft; although the animal is in some measure common, I could not procure any skins from the natives.

Very few kangaroos were seen, none indeed beyond the

parallel of 28°. All that were seen were of the common kind, none of the minor description apparently inhabiting the interior, if I except some *Rock Wallabi*, noticed on the Barrier Range. The last beautiful little animal always escaped us in consequence of its extreme agility and watchfulness.

The Native Dog was not seen beyond lat. 28°. Nor was it found in a wild state beyond Fort Grey, to the best of my recollection; these miserable and melancholy animals would come to water where we were, unconscious of our presence, and would gain the very bank of the creek before they discovered us, rousing us by as melancholy a howl as jackal ever made; their emaciated bodies standing between us and the moon, were the most wretched objects of the brute creation.

The first *Chæropus castanotus* seen, was on the banks of the Darling, in the possession of the natives, but it was too much injured to be valuable as a specimen. A second was also killed there, but torn to pieces by the dogs. None were afterwards seen until after the Barrier Range had been crossed, when about lat. 27° several were captured alive, as detailed under the head Dipus. In like manner the first nest of the "Building Rats" (*Mus conditor*, Gould) was found in the brushes on the Darling, where they were numerous. The last nest of these animals was on the bank of the muddy lagoon to the north of the Pine Forest, in which the party were so embarrassed, at the end of 1844.

The first *Hapalotis*, seen was in lat. 29½° on some plains to the eastward of the Depôt, where it was nearly captured by Mr. Browne. A second was taken by Mr. Stewart, at the tents, but in neither places were they found inhabiting the same kind of country as that in which they

were subsequently found in such vast numbers. Mr. Gould thinks there were two species amongst those brought home, and it may be that these two were different from those inhabiting the sand hills: they only differed, however, in a darker shade in the fur, and a reddish mark on the back of the ears.

There were both rats and mice in the N.W. interior, numbers of which took up their abode in our underground room at the Depôt, but there was no apparent difference between them and the ordinary rat or mouse.

There was only one Opossum killed, or indeed seen to the westward of the Barrier Range, nor do they appear to inhabit the interior in any numbers. Since there were no signs of the trees having been ascended by the natives in search of them.

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1. CANIS FAMILIARIS, var. AUSTRALASIÆ.—*Dingo.*

This animal was not very numerous in the interior, more especially towards the centre, for it was not noticed to the north of the Stony Desert. Wherever seen it was in the most miserable condition, and it is difficult to say on what they lived. This animal was of all colours. It appears to me that if these dogs are indigenous, nature has departed from her usual laws as regards wild beasts, in giving them such a variety of colours.

2. MACROPUS MAJOR.—*Great Kangaroo.*

This animal did not extend beyond 28°. Six or seven were there seen on a small stony range, but very few were observed to the westward of the Barrier Range.

3. Macropus laniger.—*Red Kangaroo.*

This fine animal did not extend beyond the neighbourhood and plains of the Murray, where it is not numerous. Several of the smaller kangaroos were taken during the progress of the Expedition up the Murray and Darling rivers; but as they have been frequently described, it is not thought necessary to insert them in this list.

4. Chœropus castanotus, Gray.

This animal was first killed on the Darling, but the specimen was destroyed by the dogs. Two or three were afterwards taken alive in latitude 26½°. They were found lying out in tufts of grass, and when roused betook themselves after a short run, to some hollow logs where they were easily cut out. The *Chœropus* is a beautiful animal, about eight inches long in the body, with a tail of considerable length, having a tuft at the end. The fur is a silvery grey, and very soft. When confined in a box they ate sparingly of grass and young leaves, but preferred meat and the offal of birds shot for them. The *Chœropus* is insectivorous, and I was therefore not surprised at their taking to animal food, which, however, not agreeing with them, they died one after the other. They squat like rabbits, laying their broad ears along their backs in the same kind of way.

5. Hapalotis Mitchellii.

This beautiful little animal was, as I have observed in the introduction to this notice, first seen in the vicinity of the Depôt. It was subsequently found in vast numbers,

inhabiting the sandy ridges from Fort Grey to Lake Torrens. Those immense banks of sand were in truth marked over with their footprints as if an army of mice or rats had been running over them. They are not much larger than a mouse, have a beautiful full black eye, long ears, and tail feathered towards the end. The colour of the fur is a light red, in rising they hop on their hind legs, and when tired go on all four, holding their tail perfectly horizontal. They breed in the flats on little mounds, burrowing inwards from the edge; various passages tending like the radii of a wheel to a common centre, to which a hole is made from the top of the mound, so that there is a communication from it to all the passages.

They are taken by the natives in hundreds, who avail themselves of a fall of rain to rove through the sandy ridges to hunt these little animals and the talpero, *Perameles*, as long as there shall be surface water. We had five of these little animals in a box, that thrived beautifully on oats, and I should have succeeded in getting them to Adelaide if it had not been for the carelessness of one of the men in fastening a tarpauline down over them one dreadful day, by which means they were smothered.

6. Mus conditor, Gould.—*The Building Rat.*

Inhabits the brushes in the Darling, in which it builds a nest of small sticks, varying in length from eight inches to three, and in thickness, from that of a quill to that of the thumb. The fabric is so firm and compact as almost to defy destruction except by fire. The animals live in communities, and have passages leading into apartments in the centre of the mound or pyramid, which might consist of three or four wheelbarrows full of the sticks, are about four feet in diameter, and three feet high. The animal

itself is like an ordinary rat, only that it has longer ears and its hind feet are disproportioned to the fore feet. It was not found beyond latitude 30°. See page 120, Vol. I.

7. ACROBATES PYGMÆA.—*Flying Opossum Mouse.*

This beautiful and delicate little animal was killed in a Box tree, whence it came out of a hole, and ran with several others along a branch, retreating again with great swiftness. It was so small that if the moon had not been very bright it could not have been seen. It is somewhat less than a mouse in size and has a tail like an emu's feather, its skin being of a dark brown.

8. LAGORCHESTES FASCIATUS (L. ALBIPILIS, GOULD?). —*Fasciated Kangaroo.*

One only of this animal was seen on the plains of the interior. It is peculiar in its habits, in that it lies in open ground and springs from its form like a hare, running with extreme velocity, and doubling short round upon its pursuers to avoid them. The *Lagorchestes* is very common on the plains to the north of Gawler Town, but is so swift as generally to elude the dogs. It is marsupial, and about the size of a rabbit, but is greatly disproportioned, as all the Kangaroo tribe are, as regards the hind and fore quarters. In colour this animal is a silvery grey, crossed with dark coloured bars on the back.

9. PHALANGISTA VULPINA.—*The Opossum.*

Like the preceding, only one of these animals was seen or shot during the Expedition; it was in one of the gum-trees, taking its silent and lonely ramble amongst its branches, when the quick eye of Tampawang, my native boy, saw him. It does not appear generally

to inhabit the N.W. interior. The present was a very large specimen, with a beautifully soft skin, and as it was the only one noticed during a residence of nearly six months at the same place, it was in all probability a stray animal.

10. VESPERTILIO.—*Little black Bat.*

This diminutive little animal flew into my tent at the Depôt, attracted by the light. It is not common in that locality, or any other that we noticed. It was of a deep black in colour and had smaller ears than usual.

BIRDS.

I have observed that a principal reason I had for supposing that there was either an inland sea, a desert country, or both in the interior, was from observations I had made during several expeditions, and in South Australia, of the migration of certain of the feathered tribes to the same point —that is to say, that in lat. 30 and in long. 144, I observed them passing to the N.W. and in lat. 35, long. 138, to the north. Seeing, on prolonging these two lines, that they would pass over a great portion of the interior before they met, about a degree beyond the tropic, I concluded that the nature of the intervening country was not such as they could inhabit, and that the first available land would be where the two lines thus met. It so happened that at the Depôt, in lat. 29½ and in long. 142, I was in the direct line of migration to the N.W., and that during our stay at that lonely post, we witnessed the migration of various birds to that quarter, though not of all. This was more particularly the case with the water-birds, as ducks, bitterns, pelicans,

cormorants, and swans,—we saw few of the latter, but generally heard them at night passing over our heads from N.W. to S.E. or *vice versâ;* but we never afterwards found any waters which we could suppose those birds could frequent in the distant interior. On Strzelecki's Creek a small tern was shot, and on Cooper's Creek several seagulls were seen, but beyond these we had no reason to anticipate the existence of inland water from any thing we noticed as to the feathered races. On our first arrival at the Depôt there was a bittern, *Ardetta flavicollis,* that frequented the creek in considerable numbers. This bird was black and white, with a speckled breast and neck. Every evening at dusk they would fly, making a hoarse noise, to the water at the bottom of the Red Hole Creek, and return in the morning, but as winter advanced they left us, and went to the N.W.

About February and the beginning of March, the *Epthianura tricolor* and *E. aurifrons,* and some of the Parrot tribe, collected in thousands on the creeks, preparatory to migrating to the same point to which the aquatic birds had gone. It was their wont to fly up and down the creeks, uttering loud cries, and collecting in vast numbers, but suddenly they would disappear, and leave the places which had rung with their wild notes as silent as the desert. The *Euphema elegans* then passed us, with several other kinds of birds, but some of them remained, as did also the *Euphema Bourkii,* which the reader will find more particularly noticed under its proper head.

The range of the Speckled Dove (*Geopelia cuneata*), so common on the Darling, extended to the Depôt, and two remained with us during the winter, and roosted two or three times on the tent ropes over my fire.

There were always an immense number of Raptores following the line of migration, and living on the smaller birds; nor was any thing more remarkable than the

terror they caused amongst them. The poor things would hardly descend to water, and several of the Euphema came to the creek in the dark, when we could not see to fire at them, and several killed themselves by flying against our tent ropes.

The range of the Rose Cockatoo was right across the continent as far as we went—as well as that of the Crested Parroquet, which was, as I have observed, the last bird we saw, just before Mr. Browne and I turned homewards from our first going to the N.W. The *Cacatua sanguinea*, Gould, succeeded the Sulphur Crested Cockatoo to the westward of the Barrier Range, and was in flocks of thousands on Evelyn's Plains, near the Depôt, but I am not certain as to the point to which it migrated. It is remarkable, however, that the Sulphur Crested Cockatoo, though numerous along the whole line of the Darling, was never seen near the Depôt, or to the westward of the Barrier Range.

The *Amadina Lathami*, to which we always looked as the harbinger of good, was met with in every part of the interior—where there was water—and frequently at such vast distances from it, when migrating, I suppose, that vast numbers must have perished.

I have noticed the Pigeons in their proper place, and stated my opinion as to the point to which they went on leaving us; and I would refer my reader to my remarks on that head: he will find their habits and localities fully described there.

We fell in with the water-hen, *Tribonyx*, on one of the creeks on our journey to Lake Torrens, and again on Strzelecki's Creek, apparently migrating to the south. These birds ran along the banks likefowls, as they did in the located districts of Adelaide, as described by Mr. Gould, and that too in great numbers, and when disturbed took wing to the south. In like manner we observed the *Eudromias*

Australis, migrating southwards in May. From these facts it would appear that the great line taken by the feathered tribes in migrating from the southern or south-eastern parts of the province is in a direction between the east and south points of the compass, and I cannot still help thinking that about a degree to the north of the Tropic, and about the meridian of 138, a more fertile country than any hitherto discovered will be found.

It may be necessary for me to observe that on our advance to Fort Grey, in August, we observed numerous *Calodera*, and other smaller birds in the brushes, apparently on the move whilst there was water for them, that had been left by the then recent rains. We did not again see these birds until we had passed the Stony Desert and entered the box-tree forest to the north of it, in which was the creek with the huge native well. There a variety of birds had congregated—the Rose Cockatoo, the piping Magpie, the Calodera, various parrots and parroquets, bronze-wing Pigeons, and numerous small birds.

At Cawndilla, Mr. Poole shot a *Euphema splendida*, Gould. It was in company with several others; but this bird was not again seen until we passed the 26th parallel, in September, when it was met by Mr. Browne and myself coming from the north. The following is a list of the birds seen during the expedition.

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1. AQUILA FUCOSA, CUVIER.—*The Wedge-tailed Eagle.*

Two of these birds frequented the Depôt Glen, in 29° 40′ 00′ and in longitude 142°, one of which was secured. They generally rested on a high pointed rock, whence their glance extended over the whole country, and it was only by accident that the above specimen was killed.

This powerful bird is common both on the Murray and the Darling, and is widely, perhaps universally distributed over the Australian continent, although the two birds in the Glen were the only ones seen in the interior to the N.W. of the Barrier, or Stanley's Range.

2. HALIASTUR SPHENURUS.—*The Whistling Eagle.*

This species of Eagle is considerably smaller than the first and has much lighter plumage. It is a dull and stupid bird, and is easily approached. It was shot at the Depôt, in the month of April, 1845. Several others were seen during our stay there.

3. FALCO HYPOLEUCUS, GOULD.—*The Grey Falcon.*

This beautiful bird was shot at the Depôt, at which place, during our long stay, Mr. Piesse, my storekeeper, was very successful with my gun. A pair, male and female, were observed by him one Sunday in May, whilst the men were at prayers, hovering very high in the air, soon after which he succeeded in killing both. They came down from a great height and pitched in the trees on the banks of the creek, and on Mr. Piesse firing at and killing one the other flew away; but returning to look for its lost companion, shared its fate. Nothing could exceed the delicate beauty of these birds when first procured. Their large, full eyes, the vivid yellow of the ceres and legs, together with their slate-coloured plumage, every feather lightly marked at the end, was quite dazzling; but all soon faded from the living brightness they had at first. The two specimens were the only ones seen during an interval of seventeen months that the party was in the interior, and these, it appears probable to me, were on the flight, and were attracted down to us.

4. FALCO MELANOGENYS, GOULD.—*The Black-cheeked Falcon.*

A single specimen of this bird was shot at the Depôt, when just stooping at a duck on some water in the glen. The strength of limb, and muscle of this fine species of falcon were extremely remarkable, and seemed to indicate that he despised weaker or smaller prey than that at which he was flying when shot. He had been seen several times before he was killed. His flight was rapid and resistless, and his stoop was always sure.

This must be a scarce bird, as the specimen was the only one seen.

5. FALCO SUBNIGER, G. R. GRAY.—*The Black Falcon.*

The colour of this fine bird is a sooty black, but his shape is beautiful, and his flight, as his sharp pointed wings indicate, rapid. He was shot in some brushes behind the Depôt, where he had been spreading alarm amongst a flight of parroquets, (*Euphema Bourkii*).

This must also be a scarce bird, as he was the only one seen.

6. FALCO FRONTATUS.—*The White-fronted Falcon.*

This is both a smaller and a more common bird; its range being very wide. This species followed the line of migration, and made sad havoc among the parroquets and smaller birds. He was generally hid in the trees, and would descend like an arrow when they came to water, frequently carrying off two of the little *Amadina castanotis*, a favourite bird of ours, one in each talon.

7. TINNUNCULUS CENCHROÏDES.—*Nankeen Kestril.*

Like the last, small and swift of wing, following also the line of migration.

This bird is generally distributed over the continent and is known by the nankeen colour of his back.

8. ASTUR APPROXIMANS, VIG. AND HORSF. *Australian Goshawk.*

This bird was occasionally seen during the journey.

9. MILVUS AFFINIS, GOULD.—*Allied Kite.*

This bird is common over the whole continent of Australia. They are sure to be in numbers at the camps of the natives, which they frequent to pick up what may be left when they go away. They are sure also to follow any party in the bush for the same purpose. About fifty of these birds remained at the Depôt, with about as many crows, when all the other birds had deserted us; and afforded great amusement to the men, who used to throw up pieces of meat for them to catch in falling. But although so tame that they would come round the tents on hearing a whistle, they would not eat any thing in captivity, and would have died if they had not been set at liberty again. It was this bird which descended upon Mr. Browne and myself in such numbers from the upper regions of the air, as we were riding on some extensive plains near the Depôt in the heat of summer. There can be no doubt but that in the most elevated positions where they are far out of the range of human sight, they mark what is passing on the plains below them. This bird is figured, see page 269, Vol. 1.

10. ELANUS SCRIPTUS, GOULD.—*The Letter-winged Kite.*

This beautiful bird was first seen on a creek to the eastward of the Barrier or Stanley's Range, and before the

party had crossed that chain of hills. One was shot on the advance of the Expedition from the Darling in the early part of November 1844, in latitude 32°, and on the return of the party from the interior, in December 1845, several specimens were seen as low as Cawndilla, and ranging along the banks of the Darling. In the interval they were seen in flocks of from thirty to forty, either soaring in the air or congregated together in trees. They were never seen to stoop at any thing, nor could we detect on what they fed, but I am led to believe that it was mice. They are fond of hovering in the air, and in such a position look beautiful, the black bar across the wing underneath them appearing like a W, and contrasting strongly with the otherwise delicate plumage of the bird. They left us for a time whilst we remained at the Depôt, and the first that were afterwards seen by us were on the return of Mr. Browne and myself from our first northern journey.

These birds are widely distributed over that part of the interior traversed by the Expedition. Like *Elanus notatus*, it has a bright full eye, the iris inclined to a light pink. Its shoulders are black, and its back like a sea-gull, slate-coloured.

11. CIRCUS JARDINII, GOULD.—*Jardine's Harrier.*

This bird, with its spotted plumage, was not common. A specimen was shot on the banks of the Darling, between Williorara and the junction with the Murray. None of the same bird were seen in the N.W. interior, or to the westward of the Barrier Range.

12. STRIX PERSONATA, VIG.—*Masked Barn Owl.*

This fine night bird was very rare in the interior, and only one specimen was procured. Its plumage is charac-

terised by that softness so peculiar to the genus to which it belongs, and in consequence of which its flight is so silent and stealthy that, like the foot-fall of the cat, it is unheard.

This owl was shot on the Darling, after having been startled out of a tree.

13. STRIX DELICATULUS, GOULD.—*Delicate Owl.*

Nearly allied to the Strix flammea, or Barn Owl of England. This bird, widely spread over the continent of Australia, inhabits the interior in great numbers, wherever there are trees large enough for it to build in. Their young were just fledged when the Expedition descended into the western interior, and at sunset came out on the branches of the gum-trees, where they sat for several hours to be fed, making a most discordant noise every time the old birds came with a fresh supply of food, which was about every quarter of an hour. It was frequently impossible to sleep from the constant screeching of the young owls. Their food is principally mice, bats, and large moths.

14. ATHENE BOOBOOK.—*Boobook Owl.*

So called from its whoop resembling that sound. Like others of its genus it comes from its hiding place at sunset, and its note in the distance is exactly like that of the cuckoo, but the sound changes as you approach it. This bird has a dark brown plumage, spotted white, and differs in many respects from the genus Strix, although very closely allied to it.

15. ÆGOTHELES NOVÆ-HOLLANDIÆ, VIG. AND HORSF.—*Owlet night Jar.*

This small bird, although a night bird, is very frequently

seen in the day time, sleeping on the branch of a Casuarina, to which they appear to be partial. It is very common in the brushes of the Murray belt, and when disturbed has an awkward flight, as if it knew not where to go. Its plumage is very downy and soft, and it weighs exceedingly light.

16. Podargus humeralis. Vig. and Horsf. *Tawny-shouldered Podargus.*

This singular bird is an inhabitant of the distant interior, and was seen on several occasions, but invariably near hills. The appearance of this uncouth bird is very absurd, with his enormous mouth that literally reaches from ear to ear, and his eyes half shut. Mr. Browne surprised five of these birds on a stone, on the summit of Mount Arrowsmith, about half a degree to the southward of the Depôt. They were all sitting with their heads together, and all flew in different directions when roused.

17. Eurostopodus guttatus.—*Spotted Goat-sucker.*

This rapid-winged night bird is widely distributed over South-eastern Australia, if not over every part of the Continent. I have often watched the motions of this light and airy bird round a pond of water close to which I have been lying, with the full bright moon above me, and been amazed at its rapid evolutions; and admired the wisdom of that Providence which had so adapted this little animal for the part it was to act on the great stage of the universe. So light, that it had no difficulty in maintaining a prolonged flight, with its noiseless wing, making its sweeps to greater or lesser distances, and seeming never to require rest. The habit of this Goat-sucker is to lie under any tree or

brush during the day, from which it issues in great alarm on being roused.

18. Chelidon Ariel, Gould.

The brown-headed Swallow, a common bird in the interior during the summer. Gregarious, and building clay nests, like bottles stuck against a tree, in rows one above the other. Instinct guides these little birds to select a tree that slopes and is concave, in which the nests will be protected from rain or storms. A white-headed swallow was also frequently seen, but it was always under circumstances that prevented our procuring a specimen.

19. Merops ornatus, Lath.—*Australian Bee-eater.*

This beautiful little bird, with its varied plumage, is migratory, and visits the southern parts of the continent during summer, when its locality is near any river, or chain of ponds, although it is also found in other places. I first shot this pretty bird on the banks of the Macquarie in 1828, where it was in considerable numbers. It visits Adelaide, and we saw it in the interior almost to our extreme north.

20. Halcyon sanctus, Vig. and Horsf. *Sacred Halcyon.*

This ill-proportioned bird in shape and general appearance is like the Kingfisher. Instead however of living on fish, he contents himself with lizards, beetles, grasshoppers, etc., and amongst these he makes a great havoc. The range of this bird did not extend beyond the lat. of the Depôt.

21. HALCYON PYRRHOPYGIA, GOULD.—*Red-backed Halcyon.*

Similar in shape and figure to the last, but differing in plumage and in size, having dull red feathers over the rump, the blue being also of a duller shade. It ranges far north.

22. ARTAMUS SORDIDUS.—*Wood Swallow.*

The flight and habits of this bird are very like those of the swallow tribe. They huddle together to roost: selecting a flat round stump, round the edge of which they sit with their heads inwards, so presenting a singular appearance: or else they cling together to the number of thirty or forty on a branch like a swarm of bees. They were seen in every part of the interior over the whole of which they appear to range.

23. ARTAMUS PERSONATUS, GOULD.—*Masked wood Swallow.*

So called because of a black mark on the throat and cheek resembling a mask in some measure. The plumage of this bird is light, the breast of the male almost approaching to a white, for size and shape there is little difference between this and the last. Both are equally common, and are seen together, ranging the brushes at a great distance from water.

24. ARTAMUS SUPERCILIOSUS, GOULD.—*White eye-browed wood Swallow.*

A white line over the eye is the distinguishing mark of this bird. One or other species of *Artamus* was found when no other birds were to be seen. They generally sat

on dead branches, and their flight extended no further than from the one to the other.

25. PARDALOTUS STRIATUS, TEMM.—*Striated Pardalote.*

There are several species of this beautiful tribe of little birds, but the above was the only kind procured. The species under consideration occupies the higher branches of the gum-trees, and is so small that it is seen with difficulty.

26. GYMNORHINA LEUCONOTA, GOULD.—*The White-backed Crow Shrike.*

This bird is somewhat larger than, and very much resembles a magpie, but the proportion of white is greater, and there is no metallic or varied tint on the black feathers as on the European bird. In South Australia it is a winter bird, and his clear fine note was always the most heard on the coldest morning, as if that temperature best suited him. All the species of this genus are easily domesticated, and learn to pipe tunes. They are mischievous birds about a house, but are useful in a garden. I had one that ranged the fields to a great distance round the house, but always returned to sleep in it.

27. CRACTICUS DESTRUCTOR.

This bird has the stron straight, and
He is an ugly brute in sha and plum , but a
magnificent songster. His ov notes r ro
wilds, and there is not a bird the f t
imitate. One of these birds y
Flood Creek every morning to n a tu of
used to whistle to him, and s s

presence by a loud note of the most metallic sound. It breeds on the hills, and is generally found wherever there is shade and water.

28. GRALLINA AUSTRALIS.—*Pied Grallina.*

This harmless bird, somewhat larger than a field-fare, is found near water, where the banks are muddy. It is common on all the river flats, and lives on insects. Its pied plumage is very pretty, but its note is a melancholy one. Very few were seen to the westward of the Barrier Range, and those always close to lagoons.

29. GRAUCALUS MELANOPS.—*Black-faced Graucalus.*

The colour of the plumage of this bird is that of slate, and it has a black throat. Its range is very extensive, but we did not see it in the distant north-west interior.

30. PTEROPODOCYS PHASIANELLA, GOULD.—*Ground Grauculus.*

There were not more than six or seven of this bird seen during the progress of the Expedition, and that only at the Depôt. They were exceedingly wild and wary, keeping in the centre of open plains and feeding on locusts and grasshoppers. They always kept together, and flew straight from and to the trees on the banks of the creek. This bird is long in shape, and has a peculiar rise over the rump. It is elegantly formed. The head and back are slate-coloured; the rump white, with scollops, as also is the breast; the wings and tail being black and long. It was with great difficulty that we procured any specimen of this bird from its shyness. It apparently came from the N.E. and departed in the same direction when winter approached.

31. CAMPEPHAGA HUMERALIS, GOULD.—*White-shouldered Campephaga.*

An insectivorous bird, frequenting the brushes of the interior, and of wide range; visiting the southern districts in summer, but evidently being a bird of a warm climate. A species very similar to the present inhabited Norfolk Island.

32. PACHYCEPHALUS GUTTURALIS.—*Guttural Pachycephala.*

The strong bill of this bird indicates its character as living on insects. It is common, and has been so often described as to require no notice here.

33. PACHYCEPHALUS PECTORALIS, VIG. AND HORSF.—*Banded Thick-head.*

Similar in habits to the last; and is abundant in all parts of South America.

34. COLLURICINCLA HARMONICA.—*Harmonious Colluricincla.*

A bird of dull plumage, with the habits of a thrush, keeping in the bushes or young sapling gum-trees, near water, and living on insects of various kinds. Its note is sweet, and amongst Australian birds it may be considered a good songster. Its range is extensive. It was numerous on Cooper's Creek, in lat. 27½° and long. 142.°

35. OREOÏCA GUTTURALIS.—*Crested piping Thrush.*

I found this bird common on the plains eastward of the

Darling, and also in the western interior. It visits the south-eastern parts of the continent, and is common in South Australia; frequenting open forests, and betraying its presence by its monotonous notes. It is a strong built bird, with a dull plumage, but its crest adds much to its beauty, and it has a deep yellow iris.

36. ERYTHRODRYAS RHODINOGASTER.—*Pink-breasted wood Robin.*

This pretty little bird is, like our own native Robin, fond of woodlands, and is generally found amongst thick brush, issuing from it to perch on dead branches. Its breast is a fine bright pink; its plumage is otherwise black and white, and it has a spot of white over the nostrils. The range of this bird is extensive, and it is common to many localities.

37. PETROICA GOODENOVII.—*Red-capped Robin.*

Similar in shape to the last, and essentially with the same plumage, with this exception, that the feathers over the nostril in this bird are a fine deep red, as well as its breast. It is found in South Australia, and was not uncommon in the interior.

38. PETROICA PHŒNICEA, GOULD.—*Flame-breasted Robin.*

Similar in general appearance, but larger than either of the last; it is grey where it is black in the others, and is without any frontal mark. It has, like the others, a breast of red, approaching to a flame colour. This species is not common in the interior. None of the three described are songsters, and cannot therefore rival our own sweet bird in that respect.

39. DRYMODES BRUNNEOPYGIA, GOULD.—*Scrub Robin.*

This bird is considerably larger than the last described, and is an inhabitant of scrubs.

40. SPHENOSTOMA CRISTATA, GOULD.—*Crested Wedge Bill.*

The note of this bird is generally heard when all the other birds are silent, during the heat of the day. Its range does not extend to the westward of the Barrier Range, or beyond 32½° of latitude.

41. MALURUS CYANEUS.—*Blue Wren.*

This beautiful little warbler, so splendidly illustrated in the work of Mr. Gould, is common in South-Australia. There are six or seven species of the genus, all equally beautiful.

42. MALURUS MELANOTUS.

This beautiful description of *Malurus*, common in the brushes of South Australia, was frequently met with, particularly in scrubby places.

43. MALURUS LEUCOPTERUS.—*White-winged.*

The habits of this bird are exactly similar to those of a wren. It delights in being on the top of bushes, whence after singing for a minute or two it flies into the centre and secretes itself. The rich-coloured males of this family are generally followed by a number of small brown birds, their late offspring. This peculiarity has been mentioned fully by Mr. Gould in his splendid work on Australian birds.

41. EPTHIANURA AURIFRONS, GOULD.—*Orange-fronted Epthianura.*

The general appearance of this beautiful little bird is very different from that of Australian birds in general. A few years ago a specimen came accidentally into my hands, and it was so unlike any bird I had seen that I doubted its having been shot in Australia, but concluded that it was a South American specimen. Two or three however were procured by the Expedition, in latitude 29°, longitude 141½°.

45. EPTHIANURA TRICOLOR, GOULD.—*Tricoloured Epthianura.*

This beautiful little bird was procured, both on the summit of the Barrier Range, and on the plains to the westward of it, generally inhabiting open brush. It was conspicuous amongst the smaller birds on account of its bright red plumage, but it was by no means uncommon. This bird evidently migrates from the north-west, and the second time, when it was seen so far to the westward of the ranges, it was most likely on its return from that point.

46. PYRRHOLÆMUS BRUNNEUS, GOULD.—*Brown Red-throat.*

A small and common brush bird, and a good warbler, more remarkable indeed for the sweetness of its song than for the beauty of its plumage.

47. CINCLORAMPHUS RUFESCENS.

A good songster, and generally distributed over the country.

48. AMADINA LATHAMI.—*Spotted-sided Finch.*

This is, I believe, the largest of its genus, and is a beautiful little bird. It was not seen to the westward of Stanley's Barrier Range. Its range is, however, extensive, as it is found in most parts of New South Wales, as well as South Australia.

49. AMADINA CASTANOTUS, GOULD.

This pretty little bird is perhaps more numerous than any other in the interior of Australia. Never did its note fall on our ears there but as the harbinger of good, for never did we hear this little bird but we were sure to find water nigh at hand, and many a time has it raised my drooping spirits and those of my companions, when in almost hopeless search for that, to us, invaluable element.

The *Amadina castanotus* is gregarious, collecting together in hundreds on bushes never very far from water, to which they regularly go at sunset. They build in small trees, many nests being together in the same tree, and hatch their young in December. It was met with in every part of the interior wherever there was water, but hundreds must perish yearly from thirst, for the country must frequently dry up round them, to such a distance as to prevent the possibility of their flying to another place of safety. The hawks make sad havoc also amongst these harmless little birds, generally carrying off two at a time.

50. CINCLOSOMA CASTANOTUS, GOULD.—*Chesnut-backed Ground Thrush.*

This is a bird of the great Murray belt, and was first shot by my very valued friend Mr. Gould, when in a bush excursion with me in South Australia. It is by no means a common bird, and is exceedingly wary.

51. CINCLOSOMA CINNAMONEUS, GOULD.—*Cinnamon-coloured Ground Thrush.*

This third species of Cinclosoma appeared at the Depôt in latitude 29½°, longitude 142°, during the winter months in considerable numbers, and a good many specimens were procured. Mr. Gould tells me this is the only new species procured during my recent Expedition, a proof, I think, of his indefatigable exertions in the prosecution of his researches. Indeed I can bear abundant testimony as to the perseverance and ability he displayed whilst with me, and the little regard he had to personal comfort, in his ardent pursuit of information as to the habits of the feathered tribes in the singular region where he was sojourning.

52. ZANTHOMYZA PHRYGIA.—*Warty-faced Honey-eater.*

This Honey-eater, with alternate black and yellow plumage, frequented all the sand hills where *Banksias* grew, but as none of those trees are to be found to the westward of Stanley's Barrier Range, so these birds were confined to the country eastward of it.

They are found both in New South Wales and in South Australia; and most probably came to the latter place from the eastward.

50. ACANTHORHYNCHUS-RUFO-GULARIS, GOULD.—*Shiny Honey-eater.*

A larger Honey-eater, with grey mottled plumage, generally found on the Banksia, and not very common.

53. ZOSTEROPS DORSALIS.—*Grey-backed white-eye.*

Seen in many parts of the country through which the Expedition passed, but more common in the settled districts of the colony. It is exceedingly mischievous amongst the grapes, and frequents the gardens in such numbers as to be formidable.

54. CHRYSOCOCCYX LUCIDUS.—*The shining Cuckoo.*

This is the smallest of the Cuckoo tribe, and is known by the metallic lustre of its wings. It is beautifully figured in Mr. Gould's work. It was frequently seen in the interior.

55. CLIMACTERIS SCANDENS, TEMM.—*Brown Tree-Creeper.*

This creeper was, with another *Climacteris Picumnus*, common in the pine forests and on the open box-tree flats all over the interior. It is not a showy bird in any way, but is very active and indefatigable in its search for insects. It is remarkable that no *Picus* has been found in Australia.

56. ACROCEPHALUS AUSTRALIS.—*The reed singing Bird.*

This beautiful warbler is common in south-eastern Australia, wherever there are reeds by the banks of the rivers or creeks, but where they were wanting its voice was silent. On the banks of the Murray and the Darling its note was to be heard during the greater part of the night, almost equal to that of the nightingale, and like that delightful bird, its plumage is any thing but brilliant, it is however somewhat larger, and although its general shade is brown, it has a light

shade of yellow in the breast that makes it brighter in its plumage than the European songster.

57. HYLACOLA PYRHOPYGIA.

A common species inhabiting scrubs.

58. HYLACOLA CAUTA, GOULD.

A small bush bird, common to the belts of the Murray and other similar localities.

59. CYSTICOLA EXILIS, GOULD.—*Exile Warbler.*

This little bird has a varied note, indeed it is not a bad songster. It inhabits grass beds and scrubby lands, but its range does not extend beyond the 32° parallel. The Barrier Range appearing to form a limit to the wanderings of many of the smaller birds.

60. ACANTHIZA PYRRHOPYGIA.—*Red-rumped Acanthiza.*

A small bush bird of brown plumage on the back, with a reddish spot over the rump.

61. ACANTHIZA CHRYSORRHÆA.—*Yellow rumped Acanthiza.*

This bird is similar to the last in every thing but the colour of the feathers over the rump, which in the present specimen is yellow. Very common on the plains and open glades of woods.

62. XEROPHILA LEUCOPSIS, GOULD.—*White-faced Xerophila.*

It is singular, as Mr. Gould relates in his work, that this bird should not have been known or procured until

he shot it, almost on the steps of Government house in Adelaide. It was occasionally seen in the interior, but not to the westward of the Barrier Range. It keeps generally on the ground. Mr. Gould has distinguished it in consequence its having a front of white. It is short and compact in form, and like the preceding bird keeps a good deal on the ground.

63. CALAMANTHUS CAMPESTRIS, GOULD.—*Field Reed Lark.*

This bird is smaller than the regular lark, and differs from it in many respects: indeed it more resembles the tit lark than the sky lark, and altogether wants the melodious song of the latter. It is a very common bird all over such parts of Australia as I have visited; frequenting open ground.

64. CINCLORAMPHUS CANTILLANS, GOULD. *Great singing Lark.*

This bird, both in its habits and song, resembles the Bunting of Europe, rising like it from the top of one bush, with a fine full note, and descending with tremulous wing to another. Its range, as far as I can judge, is right across the continent, since we fell in with it at our most distant northern points. It is much larger than the above, has a stronger bill, and a dark breast. This bird is good eating.

65. CINCLORAMPHUS RUFESCENS.—*Singing Lark.*

This is also a good songster.

66. CORCORX LEUCOPTERUS.—*White-winged Chough.*

This bird has a dirty black plumage, excepting a white

bar across the wings. It is generally seen in groups of six or seven, flying from tree to tree, and is widely distributed all over the continent.

67. Corvus Coronoïdes, Vig. and Horsf. *White-eyed Crow.*

This bird approaches somewhat to the raven. Its plumage is black and glossy, its neck feathers like a cock's hackle, and the iris white, the latter peculiarity giving it a singular appearance. Many of these birds remained with us at the Depôt after we had been deserted by most of the other kinds, and served to fatten an old native who had visited the camp, on whose condition they worked a perfect miracle. I suppose indeed that there never was such an instance of an individual becoming absolutely fat in so short a time, from a state of extreme emaciation, as in that old and singular savage, from eating the crows that were shot for him, and which constituted his chief, I might say, his only food.

68. Pomatorhinus superciliosus.

A bird that frequented the cypress and pine forests; running along the branches of the trees like rats, and chasing each other from one to the other. This bird is about the size of a thrush, but is very different in other respects. It has dark brown plumage, with a rufous breast.

69. Pomatorhinus temporalis.

A bird very similar in plumage and habits to the last, but smaller and quicker in its motions. I shot these birds on a former expedition to the eastward of the Darling, and both are figured in my former work, page 219, vol. II.

70. GLYCIPHILA FULVIFRONS.—*Fulvous-fronted Honey-eater.*

A bird common amongst the honey-suckles (*Banksias*), in the sandy rises or mounds in the neighbourhood of the Darling. It appears in South Australia in similar localities, and has all the characters of its genus in the curved bill, pencilled tongue, and other points.

71. GLYCIPHILA ALBIFRONS, GOULD.—*White-fronted Glyciphila.*

This bird is about the size of a chaffinch, and was first killed by me on the Darling.

72. PTILOTIS CRATITIUS, GOULD.

This Honey-eater is remarkable in having a narrow lilac skin on the cheek, with a light line of yellow feathers beneath it. It is long both in the body and tail, and is of graceful form. Its colour is grey, but the breast is of a lighter shade and is slightly mottled. First shot by Mr. Gould in South Australia, from whose searching eye, and persevering industry, few things escaped. It was not common in the interior, but was occasionally seen in favourable localities.

73. ANTHOCHÆRA CARUNCULATA.—*Wattle Bird.*

Frequents Banksias, and is common wherever those trees are to be found. The *Anthochæra carunculata* is the largest of the wattle birds in South Australia. It has a grey plumage, mottled with white, and is by no means inelegant in its shape, being a long, slender, well proportioned bird. The whole of the Honey-suckers have curved bills and pencilled tongues.

74. ANTHOCHÆRA MELLIVORA.—*Brush Wattle Bird.*

This Honey-eater is of very limited range, and was so seldom seen during the progress of the Expedition up the Darling, that it may almost be said to be confined to the located district of South Australia. Its range, however, is as far as to the parallel of 30°, beyond which point, as the majority of the honey-bearing trees cease, the larger Honey-suckers are not to be found. Like all the birds of the same genus, it is quick in its movements.

75. MELITHREPTUS GULARIS, GOULD.—*Black-throated Honey-eater.*

This bird is distinguished by its black throat, and a white lunate mark on the nape of the neck. It is to be found in most places where honey-bearing flowers or trees are to be seen. The general plumage is a dull green.

76. MELITHREPTUS LUNULATUS.—*Lunulated Honey-eater.*

This species partakes of all the characters of the genus, but is much smaller.

The range of the Honey-eaters does not extend beyond the 28th parallel—towards the N.W. interior, or Central Australia; as there are few honey-giving trees in that desert region. They are found all along the summits of the Barrier Range, however, in considerable numbers; and are always known by their loud wild note.

77. MYZANTHA GARRULA.—*The Old Soldier.*

A very sociable and tame bird. Its range is over the whole of south-eastern Australia, and we saw nests of these noisy birds at Fort Grey, in 29°. The general

colour is grey; their bill, and some portion of the head being yellow. They are fond of being near habitations, and frequent the trees round a stock station in great numbers.

78. SITTELLA PILEATA, GOULD.—*Black-capped Sittella.*

A creeper, with a black head, and grey brown plumage. Not very common, though often seen in the interior. It is larger than the *S. Chrysoptera.*

79. CACATUA GALERITA.—*Sulphur-crested Cockatoo.*

This Cockatoo, the most common in Australia, is snow-white, with the exception of its crest, which is of a bright sulphur. It is also the most mischievous of Australian birds, and not only plays sad havoc amongst the wheat when ripe, but soon clears a field that has been sown. They are in immense flocks, and when in mischief always have sentinels at some prominent point to prevent their being taken by surprise, and signify the approach of a foe by a loud scream. They build in the hollows of trees, and in vast numbers in the Murray cliffs, making them ring with their wild notes; and in that situation are out of reach of the natives. They are abundant along the line of the Darling as high as Fort Bourke, but do not pass to the westward of that river, nor do they inhabit the interior.

80. CACATUA LEADBEATERII.—*Leadbeater's Cockatoo.*

This beautiful Cockatoo is, like the first, of white plumage, with a light red shade under the wings. He has a large sulphur and scarlet crest, which he erects to the best advantage when alarmed. This Cockatoo frequents the pine forests near Gawler Town, and is seen wherever

that tree abounds; but he is not common, although widely distributed over the interior; his range extending to the latitude of Fort Grey, in 29°; far beyond where any pine-trees were to be found.

81. Cacatua sanguinea, Gould.—*Blood-stained Cockatoo.*

This is a smaller bird than either of the preceding; it is also of white plumage, with a light red down under the feathers; and, although it has the power of erecting the feathers on its head, it may be said to be crestless. This bird succeeded *Cacatua galerita*, and was first seen in an immense flock on the grassy plains at the bottom of the Depôt Creek, feeding on the grassy plains or under the trees, where it greedily sought the seeds of the kidney bean. These cockatoos were very wild, and when they rose from the ground or the trees made a most discordant noise, their note being, if anything, still more disagreeable than that of either of the others. They left us in April, and must have migrated to the N.E., as they did not pass us to the N.W., nor were they any where seen so numerous as at this place.

82. Cacatua eos.—*Rose Cockatoo.*

This beautiful bird, seen in the depressed interior in such great numbers, has a slate-coloured back, wings and tail, whilst its breast and neck are of a beautiful rose-pink colour. It has a trifling crest, but not one like the two first described cockatoos. We carried this bird with us to the farthest north, as high up as the 25th parallel. There were several nests at Fort Grey, from which the men procured several young; one of which I brought alive to Adelaide. They hatch in the end of October, and build in the hollows of the box-trees. A flock of these cockatoos,

turning their red breasts together to the sun in flying, look very beautiful.

83. LICMETIS NASICUS.—*Long-billed Licmetis.*

This cockatoo is very like *Cacatua sanguinea* in colour and shape. It is white, with a dirty shade of yellow under the wing. The upper mandibula is much longer than the lower, overhanging it considerably. This it uses to grub up roots and other things on which it lives. These cockatoos were very numerous on the Murray, and are altogether distinct from the genus to which I have compared them; but their note is very similar, and, excepting to a naturalist, the difference is difficult to observe. The skin round the eye of both species is much larger than the cere round that of the common cockatoo.

84. CALYPTORHYNCHUS FUNEREUS?—*Black Cockatoo.*

This fine bird was widely distributed over the brushy land of the interior, but was never seen in any considerable numbers. Its plumage is black, and the broad feathers in the tail are of a light yellow underneath. There is a supposition that when these cockatoos fly across the country uttering their hoarse note, it is a prelude to rain; but unfortunately I can bear testimony to the contrary, having often seen them so fly over my head when I would have given my right arm for water. I am not aware that the Black Cockatoo will survive captivity, I believe they always pine and die.

85. POLYTELIS MELANURA.—*Black-tailed Parroquet.*

The Murray Parrot, with a bright yellow body and neck, the feathers at the back of the neck having a greener tinge. The long feathers of the wing are of a blue black, as also the tail, but in the wings there are three or four

desultory red feathers. This bird visits the valley of the Murray in great numbers in the summer months, where its young are taken in great numbers, and easily tamed in cages. I was unable to make out where this bird comes from, or the point to which it migrates. Their place of abode during the winter is entirely unknown. It is a beautiful and a showy bird, making a noise something like the Green Leak, and was first shot by me on my return up the river, in 1836.

86. PLATYCERCUS BARNARDII, VIG. AND HORSF. *Barnard's Parroquet.*

This fine bird is found in the Murray Belt as well as in other localities, and is thence termed the parrot of the Murray Belt. It is one of the most beautiful of the parrot tribe, has a generally blue-green plumage on the back and neck, with a yellow crescent on the breast, and a purple below. This family are all distinguished by having long tails.

87. PLATYCERCUS ADELAIDIÆ, GOULD.—*The Adelaide Parroquet.*

This fine and beautiful bird is common in South Australia, where it usurps the place of the Lory (*Platycercus penantii*) in New South Wales, and does equal mischief to the stack-yard. Its general plumage is yellow, but it has a dull red head, and blue cheeks. Its wings and tail, which is very long, are also blue, the longer feathers being almost black. Its back is marked with black scollops, and in size exceeds many of the *Platycerci.*

88. PSEPHOTUS HÆMATOGASTER, GOULD.—*The Crimson-bellied Parroquet.*

This Parroquet is a bird of the interior, and was spread

over the whole of it in greater or less numbers. Always numerous where box-trees were growing in the vicinity of water. The *Psephotus hæmatogaster* is essentially a bird of the central parts of Australia, or else its range is confined between the 24th and 30th parallels of latitude. It is not a bird of bright plumage; it is distinguished by a bright crimson belly. It has likewise feathers of a peculiar bronze and yellow on the wings; the rest of the plumage being a dull blue green, excepting that over the bill it has some light blue feathers.

89. PSEPHOTUS HÆMATONOTUS, GOULD.—*Red-rumped Parroquet.*

This is a bird of the interior, and was found on the most distant creeks, amongst the gum-trees. It was, however, fond of being on the ground, from whence it would rise and hide itself on being alarmed. It is a wild bird, and a noisy one. It colours are generally dull.

90. EUPHEMA ELEGANS.—*Grass Parroquet.*

This beautiful *Euphema* is seen in great numbers on the sea-skirts of the plains of Adelaide, feeding on grass seeds. It was in course of migration when we were at the Depôt in lat. 29° 40′; but after the other birds, and remained stationary for some time. It was never seen by us in the day time, but came regularly to water night and morning, when it was so dark that they could hardly be seen. The plumage of this bird is very beautiful. Its back and neck are green, as well as the crown of the head; its wings blue black; the breast and under tail feathers are of a bright yellow, with a blue and yellow band in the front.

91. EUPHEMA BOURKII.—*Bourke's Parroquet.*

This elegant little bird was also a visitant at the

Depôt, and remained throughout the winter; keeping in the day time in the barren brushes behind the camp, and coming only to water. The approach of this little bird was intimated by a sharp cutting noise in passing rapidly through the air, when it was so dark that no object could be seen distinctly; and they frequently struck against the tent cords in consequence. This *Euphema* has a general dark plumage, but with a beautifully delicate rose-pink shade over the breast and head, by which it will always be distinguished.

92. MELOPSITTACUS UNDULATUS.—*Warbling Grass Parroquet.*

Called "Bidgerigung" by the natives. This beautiful little Euphema visits South Australia about the end of August or the beginning of September, and remains until some time after the breeding season. It is perhaps the most numerous of the summer birds. I remember, in 1838, being at the head of St. Vincent's Gulf, early in September, and seeing flights of these birds, and *Nymphicus Novæ-Holl.* following each other in numbers of from 50 to 100 along the coast line, like starlings following a line of coast. They came directly from the north, and all kept the same straight line, or in each other's wake. Both birds subsequently disperse over the province. The plumage of this bird is a bright yellow, scolloped black, and three or four beautiful deep blue spots over each side the cheek.

93. NYMPHICUS NOVÆ-HOLLANDIÆ.—*The Crested Parroquet.*

One of the most graceful of the parrot tribe, coming in, as I have stated above, with the *Melopsittacus*, and remaining during the summer. The general plumage is grey, with a white band across the wings. It has also a sulphur-

yellow patch on the cheek, in the centre of which is one of scarlet. It has also a long, hairy crest, which it keeps generally erected. Both birds passed the Depôt in migrating, and *Nymphicus* was the last bird we saw to the north of the Stony Desert, in lat. 24½° and long. 138°, on its return to the province in September.

94. TRICHOLOSSUS PORPHYROCEPHALUS, DIET.—*Porphyry-crowned Parroquet.*

This pretty bird has a green plumage, but is distinguished by a deep blue patch on the crown of the head; from which it derives its name.

95. PEZOPORUS FORMOSUS.—*The Ground Parrot.*

This bird was only twice seen in the interior, but on both occasions in the same scrubby and salty country it is known to frequent in New South Wales and other places. A specimen was shot by Mr. Stuart, in the bed of a salt lagoon in 26½° of latitude, and 14½° of longitude, but none of these birds were seen to the west of that point. It has dark green plumage mottled with black, and has a patch of dull red over the bill.

96. PHAPS CHALCOPTERA.—*Common Bronze-wing.*

This fine pigeon, so well known in the located parts of the continent, was also generally spread over the interior. Its habits are peculiar, insomuch that it goes to water at so late an hour that it is almost impossible to see them. They were rather numerous at the Depôt, but very few were shot there. In the more distant interior, when we should frequently have been glad of one of these birds to give a relish to our monotonous diet, they were equally as difficult to be shot, and although we sat at the edge of any pond near which we happened to be,

and watched with noiseless anxiety, they would get to the water, and the sharp flap of their wings in rising, alone told us we had missed our game. The natives of the Murray set nets across any gully down which they fly to water on the banks of the Murray, and so catch them in great numbers. The Bronze-wing is strong in his flight, and is a plump bird, and capital to eat. Its general colour is brown lightly mottled, it has a dirty-white crown, and the wing feathers are a beautiful bronze.

97. PHAPS ELEGANS.—*Small Brush Bronze-wing.*

This is much smaller than the above, and not so common. It inhabits close brushes, and is flushed like a woodcock, there seldom being more than two together. Its plumage is darker than *Phaps chalcoptera*, nor is there any white about it except on the crown of the head, the secondary wing feathers being of a bronze colour, without any shade of blue and green, so prominent in the first described of these birds.

98. PHAPS HISTRIONICA, GOULD.—*The Harlequin Bronze-wing.*

This beautiful pigeon is an inhabitant of the interior. Its range was between the parallels of 31½° and 26°, but it was never seen to the south of Stanley's Barrier Range, if I except a solitary wanderer on the banks of the Murray. These birds lay their eggs in February, depositing them under any low bush in the middle of open plains. In the end of March and the beginning of April, they collect in large flats and live on the seed of the rice-grass, which the natives also collect for food. During the short period this harvest lasts, the flavour of these pigeons is most delicious, but at other times it is indifferent. They feed on the open plains, and come to water at sunset, but

like the Bronze-wing only wet the bill. It is astonishing indeed that so small a quantity as a bare mouthful should be sufficient to quench their thirst in the burning deserts they inhabit. They left us in the beginning of May, and I think migrated to the N.E., for the farther we went to the westward the fewer did we see of them. This bird has a white and black head, the crown being white, and its back is a rusty brown, the long feathers of the wings of a slate colour, with a white spot at the end of each as well as at the end of the tail feathers; the belly being a beautiful deep slate colour. See page 83, vol. II.

99. GEOPHAPS PLUMIFERA, GOULD.

It was on the return of the party from the eastern extremity of Cooper's Creek, that we first saw and procured specimens of this beautiful little bird. Its locality was entirely confined to about thirty miles along the banks of that creek, and it was generally noticed perched on some rock fully exposed to the sun's rays, and evidently taking a pleasure in basking in the tremendous heat. It was very wild and took wing on hearing the least noise, but its flight was short and rapid like that of a quail, which bird it resembles in many of its habits. In the afternoon this little pigeon was seen running in the grass on the creek side, and could hardly be distinguished from a quail. It never perched on the trees, but when it dropped after rising from the ground, could seldom be flushed again, but ran with such speed through the grass as to elude our search. The plate, to which I may refer the reader at page 83, vol. II. in which he will see it figured, will supersede the necessity of any description. The *Geophaps plumifera* was found, I believe, in considerable numbers on the Lind and the Burdekin by Doctor Leichhardt, during his journey from Moreton Bay to Port Essington.

100. OCYPHAPS LOPHOTES.—*Crested Pigeon of the Marshes.*

The locality of this beautiful pigeon is always near water. It is a bird of the depresed interior, never ascending to higher land where there are extensive marshes covered with the polygonum geranium. In river valleys, on the flats of which the same bramble grows, the *Ocyphaps lophotes* is sure to be found. It was first seen by me on the banks of the Macquarie, in lat. 31° during my expedition to the Darling, but there is no part of the interior over which I have subsequently travelled where it is not, and it is very evident that its range is right across the continent from north to south. The general colour of this bird is a light purple or slate colour, and its form and plumage are both much more delicate than that of the Bronze-wing, but it is by no means so fine a bird, its flesh being neither tender nor well-flavoured.

This bird is figured in my former work, page 79, vol. I. It has a crest, and is marked on the back and wings very similar to *Geophaps plumiferus*. This bird builds in low shrubs in exposed situations, and lays two eggs on so few twigs that it is only surprising how they remain together.

101. GEOPELIA CUNEATA.—*Speckled Dove.*

All that we read or imagine of the softness and innocence of the dove is realised in this beautiful and delicate little bird. It is very small and has a general purple plumage approaching to lilac. It has a bright red skin round the eyes, the iris being also red, and its wings are speckled over with delicate white spots. This sweet bird is common on the Murray and the Darling, and was met with in various parts of the interior, but I do not think that it migrates to the N.W. Two remained with us at the

Depôt in latitude 39′ 40°, longitude 142°, during a greater part of the winter, and on one occasion roosted on my tent ropes near a fire. The note of this dove is exceedingly plaintive, and is softer, but much resembles the coo of the turtle-dove.

102. Geopelia tranquilla, Gould.—*Ventriloquist Dove.*

This bird, somewhat larger than the preceding, is not by any means so delicate in appearance. The colour of its plumage is similar in some respects, but has close black scollops on the breast and neck without any spots on the wings. This bird also frequents the banks of the Darling and the Murray, but is not so common as *Geopelia cuneata*. I first heard it on the marshes of the Macquarie, but could not see it. The fact is that it has the power of throwing its voice to a distance, and I mistook it for some time for the note of a large bird on the plains, and sent a man more than once with a gun to shoot it, without success. At last, as Mr. Hume and I were one day sitting under a tree on the Bogan creek, between the Macquarie and the Darling, we heard the note, and I sent my man Fraser to try once more if he could discover what bird it was, when on looking up into the tree under which we were sitting we saw one of these little doves, and ascertained from the movement of its throat that the sound proceeded from it, although it still fell on our ears as if it had been some large bird upon the plain. I have therefore taken upon me to call it the "Ventriloquist."

103. Pedionomus torquatus, Gould.—*The plain Wanderer.*

This singular bird, in plumage and habit so like the

Quail, was first discovered on the plains of Adelaide by Mr. Gould, where it appeared in considerable numbers in the year 1839-40. It was afterwards procured by a persevering collector in that colony, Mr. Strange, who is now in Sydney. Although in many respects resembling a Quail, this bird has long legs like a Bustard, but has a hind toe which that bird has not. We fell in with several in the N.W. interior, but they were all solitary birds. How far therefore we might conclude that they migrate northwards may be doubtful, although, it is impossible to suppose they would proceed in any other direction. The *Pedionomus* is a stupid little bird, and is more frequently caught by the dog than shot. Its general colour is a light brown, speckled with black like a quail. Its neck is white, spotted thickly with black, and has a white iris.

104. HEMIPODIUS VARIUS.—*Varied Quail.*

This bird is the prettiest of its tribe, and is very common in many of the located parts of south-eastern Australia, but is not a bird of the interior, and was not observed beyond the flats of the Darling, where it was occasionally flushed from amongst the long grass.

105. COTURNIX PECTORALIS.—*Quail.*

This bird is very common on the better description of plains in South Australia, and two or three specimens were shot during the early progress of the Expedition, but it was not seen to the north of Stanley's Range. It is to be observed, indeed, that few quails of any kind were seen in the interior. This variety is a very pretty bird, with bright brown plumage, mottled like that of the ordinary quail, and is characterized by a black spot on the breast.

106. SYNOÏCUS AUSTRALIS.—*Swamp Quail, or Partridge.*

Synoïcus Australis is a smaller bird than those just described, but the colour of the plumage is much the same. It is generally found in marshes, or marshy ground, and frequently in bevies.

107. SYNOÏCUS CHINENSIS.

This beautiful little quail is generally found in marshes, or in high rushy ground. It is not a common bird. In size this quail is not larger than a young guinea fowl that has just broken the shell. It has dark plumage on the back and head—a deep purple breast and belly, and a white horse-shoe on the upper part of the neck. The female has general dark plumage, speckled black.

108. DROMAIUS NOVÆ-HOLLANDIÆ.—*The Emu.*

This noble bird ranges over the whole of the continent, although we did not see any to the north of the Stony Desert. A good many were killed by the dogs at Fort Grey. They travel many miles during a single night to water, as was proved by a pack of thirteen coming down to the Depôt Creek to drink, that we had seen the evening before more than 12 miles to the north. Those we saw in the distant interior did not differ from the common emu.

109. OTIS AUSTRALASIANUS.—*The Bustard.*

This fine and erectly walking bird is also common over the whole of the interior, migrating from the north in September and October. Several flights of these birds were seen by us thus migrating southwards in August, passing

over our heads at a considerable elevation, as if they intended to be long on the wing. I have known this Otis weigh 28lbs. Its flesh is dark and varied in shade. The flavour is game and the meat is tender.

110. LOBIVANELLUS LOBATUS.—*The wattled Peewit.*

This bird is most abundant over all south-east Australia, on plains, marshes, and rivers, its cry and flight are very like that of our Peewit at home, and it adopts the same stratagem to draw the fowler from its young. It is a pretty bird, with bright yellow eye and a singular wattle coming from the bill along the cheek. It is also remarkable for a spur on the shoulder which it uses with much force in fighting with any crow or hawk.

111. EDICNEMUS GRALLARIUS.—*The southern stone Plover.*

There are few parts in the located districts of Australia in which this bird is not to be found. Its peculiar and melancholy cry, ran through the silence of the desert itself, and wherever rocks occurred near water they were also seen but not in any number. We caught a fine young bird at Flood's Creek, but as it was impossible to keep it, we let it go. This bird very much resembles the stone Plover of England, but there are some slight differences of plumage.

112. SARCIOPHORUS PECTORALIS.—*Black-breasted Dottrel.*

This bird is remarkable for a small red wattle protruding from the bill, with a grey back and wings. It takes its name from its black breast.

113. EUDROMIAS AUSTRALIS, GOULD.—*Aust. Dottrel.*

This singular bird like several others of different genera, made its appearance in 1841 suddenly on the plains of Adelaide, seeming to have come from the north. It occupied the sand hills at the edge of the Mangrove swamps and fed round the puddles of water on the plains. This bird afforded my friend Mr. Torrens, an abundant harvest, as they were numerous round his house, but although some few have visited South Australia every year, they have never appeared in such numbers as on the first occasion. The plumage is a reddish brown, with a dark horseshoe on the breast. It has a full eye, and runs very fast along the ground, Mr. Browne and I met or rather crossed several flights of these birds in August of 1845, going south. They were in very large open plains and were very wild.

114. HIATICULA NIGRIFRONS.—*Black-fronted Dotrell.*

Much smaller than the preceding. A pretty little bird with a plaintive note, generally seen in pairs on the edge of muddy lagoons. Its plumage is a mixture of black, white, and brown, the first colour predominating on the head and breast. It runs with great swiftness, but delights more in flying from one side of a pond to the other.

115. CHLADORHYNCHUS PECTORALIS.—*The Banded Stilt.*

This singular bird, with legs so admirably adapted by their length for wading into the shallow lakes and sheets of water, near which it is found, is in large flocks in the interior. It was in great numbers on Lepson's Lake to the northward of Cooper's Creek, and on Strzelecki's Creek

was sitting on the water with other wild fowl making a singular plaintive whistle. It is semipalmated, has black wings, and a band of brown on the breast, but it is otherwise white. Its bill is long, straight and slender, and its legs are naked for more than an inch and half above the knee.

116. HIMANTOPUS LEUCOCEPHALUS, GOULD.—*The white-headed Stilt.*

The present bird is about the size of *Chladorhynchus pectoralis*, and in plumage is nearly the same. This bird was not found in the distant interior but in the shallow basin and round the salt lagoons of Lake Torrens.

117. SCHŒNICLUS AUSTRALIS.—*Australian Sand-piper.*

A bird very much resembling the British Dunlin. General plumage, grey with a white breast. A quick runner, and fond of low damp situations as well as open plains. Common on the banks of all rivers and lagoons.

118. SCOLOPAX AUSTRALIS, LATH.—*Snipe.*

Considerably larger than the Snipe of England. Common in South Australia but very scarce in the interior. In the valley of the Mypunga there are great numbers of snipe which build there, but it is only in such localities, where the ground is constantly soft that they are to be found. Their flesh is delicate and their flavour good.

119. RHYNCHÆA AUSTRALIS, GOULD.—*Painted Snipe.*

This beautiful bird was also very scarce in the interior,

having been seen only on one occasion. It is not a common bird indeed any where. Some three or four couple visit my residence at Grange yearly, and remain in the high reeds at the bottom of the creek. As they are with us during the summer they doubtless build, but we never found one of their nests. They lay basking in the shade of a tree on the sand hills during the day, and separate when alarmed. It is full as large as *Scolopax Australis*, but its plumage is black-banded on the back with a general shade of green. Its head is black and brown. It has a black horse-shoe on the breast, the belly being white, and the quill feathers are grey with a small brown spot on each.

120. GRUS AUSTRALASIANUS.—*Crane, or Native Companion.*

This large sized Crane is common near the waters of the interior, but he is a wary bird, and seldom lets the fowler within shot. When seen in companies they often stand in a row, as they fly in a line like wild fowl. Their general plumage is slate colour, but they have a red ceres or skin on the head. One of these birds was tame in the Government domain at Paramatta in 1829, and a goose used daily to visit it and remain with it for many hours. I have frequently seen them together, and the goose has allowed me to approach quite close before he flew. At last I suppose the poor bird was shot, as he suddenly ceased to visit his friend, and the Native Companion died some little time afterwards.

121. HERODIAS SERMATOPHORUS, GOULD.—*White Heron.*

This beautiful Heron is common all over the inhabited parts of the Australian Continent, and is seen at a great

distance in consequence of its snow-white plumage. It was not however seen in the interior, although it was frequently seen on the line both of the Darling and the Murray.

122. NYCTICORAX CALEDONICUS.—*Nankeen Bird.*

A Night Heron with a nankeen-coloured back and wings, and white breast, with a black crown to the head from which three long fine white feathers project. It is altogether a bird frequenting water, building in trees as the Heron does. It is about the size of a well grown young fowl, but is not good eating.

123. BOTAURUS AUSTRALIS.—*The Bittern.*

Is well known with its dark brown mottled plumage and hoarse croaking note. These birds are very numerous in the reedy flats of the Murray, whence they call to one another like bull frogs. It is a higher bird than the above, with a ruff down the neck, which behind is naked. He has a fine bright eye, and darts with his bill with astonishing rapidity and force.

124. BOTAURUS FLAVICOLLIS.—*Spotted Bittern.*

This bird was very numerous at the Depôt Creek, remaining during the day in the trees in the glen. There was, as the reader may recollect, a long sheet of water at the termination of the Depôt Creek distant about thirty miles. It was the habit of these birds to fly from the glen across the plains to this lower water, where they remained until dawn, when they announced their return to us by a croaking note as they approached the trees. They collected in the glen about the end of April, and left us, but, I am not certain to what quarter they passed, although I believe

it was to the north-west, the direction taken by all the aquatic birds. This bird had a black body, and white neck with a light shade of yellow, and speckled black.

125. PORPHYRIO MELANOTUS, TEMM.—*The black-backed Porphyrio.*

This bird is very common on the Murray, where birds of the same kinds have such extensive patches of reeds in which to hide themselves. Although dark on the back their general plumage is a fine blue, and their bills and legs are a deep red as well as the fleshy patch on the front of the crown. It was not seen by us to the westward of the Barrier Range, nor is it an inhabitant of any of the creeks we passed to the N.W. This Coote is of tolerable size, but is not fit to eat, its flesh being hard, and the taste strong.

126. TRIBONYX VENTRALIS, GOULD.—*The black-tailed Tribonyx.*

This bird, like the *Eudromias Australis* or Australian Dottrel appeared suddenly in South Australia in 1840. It came by the successive creeks from the north, fresh flights coming up to push those which had preceded them on. It was moreover evident that they had been unaccustomed to the sight of man, as they dropped in great numbers in the streets and gardens of Adelaide, and ran about like fowls. At last they increased so much in numbers as to swarm on all the waters and creeks, doing an infinity of damage to the crops in the neighbourhood. They took the entire possession of the creek near my house, and broke down and wholly destroyed about an acre and a quarter of wheat as if cattle had bedded on it. These birds made their first appearance in November, and left us

in the beginning of March, gradually retiring northwards as they had advanced.

The plumage of this bird is a dark dusky green, and it has a short black tail which it cocks up in running. Its bill is green and red, and it has all the motions and habits of a water rail, and although it has visited the province annually, since its first visit, it has never appeared in such vast numbers as on the first occasion.

The line on which this bird migrates seems to be due north. It was never seen at the Depôt or on any of the creeks to the west excepting Strzelecki's Creek, and a creek we crossed on our way to Lake Torrens, when on both occasions they were migrating southwards.

127. RALLUS PECTORALIS, CUVIER.—*Water Rail.*

This bird could hardly be distinguished from the English rail in shape and plumage. It is admirably adapted for making its way through reeds or grass, from its sharp breast. There are numbers of this rail on the Murray, but not many on the Darling; the natives can easily run it down. It was seen on two or three ponds in the interior and must have considerable powers of flight to wing its way from the one to the other as they successively dry up.

128. BERNICLA JUBATA.—*Mained Goose, wood Duck.*

There are two varieties of this beautiful goose, one bird being considerably larger than the other, but precisely the same in plumage. In the colony they are called the wood duck, as they rest on logs and branches of trees, and are often in the depth of the forest. They have an exceedingly small bill characteristic of their

genus, and a beautifully mottled neck and breast, the head and neck being a light brown. The smaller species is very common all over South-eastern Australia, but the larger bird is more rare. Three only were shot during the progress of the Expedition. Their range did not extend beyond 28°.

129. CYGNUS ATRATUS.—*The black Swan.*

A description of this bird is here unnecessary. I may merely observe that the only swan seen on the waters of the interior was a solitary one on Cooper's Creek. They frequently passed over us at night during our stay at the Depôt, coming from and going to the N.W., being more frequently on the wing when the moon was shining bright than at any other time.

130. CASARCA TADORNOÏDES.—*Chesnut-coloured Sheldrake.*

This beautiful duck, the pride of Australian waters, is a bird of the finest plumage. He is called the Mountain Duck by the settlers, and may be more common in the hills than the low country, since he is seldom found in the latter district. This bird builds in a tree, and when the young are hatched, the male bird carries them in his bill down to the ground. Strange, whose name I have already mentioned, had an opportunity to watch two birds that had a brood of young in the hollow of a lofty tree on the Gawler; and after the male bird had deposited his charge, he went and secured the young, five in number, which he brought to me at Adelaide, but I could not, with every care, keep them alive more than a month. This bird is very large as a duck; his head and neck are a fine green in colour, and he has a white ring round his neck, as also

a white band across his wings. It is not a good eating bird, however, as is often the case with the birds of finer plumage.

131. ANAS SUPERCILIOSA, GMEL.—*The Wild Duck.*

Unlike the preceding, this bird is one of the finest eating birds of Australia, being the wild duck of that continent. It is a fine bird in point of size, but cannot boast the plumage of our mallard. It is a bird of dark, almost black plumage, with a few glossy, green, secondary feathers, characteristic of the genus. It is spread over the whole of the interior, even to the north of the Stony Desert, but was there very wild, and kept out of our reach.

132. SPATULA RHYNCHOTIS.—*Australian Shoveller.*

Not quite so large as the wild duck, but extremely good eating. This bird is not common in the interior, and was only seen once or twice amongst other ducks. Its plumage is a dark brown, and it has a light dull blue band across the wing. It takes its name from its peculiar bill, and may be termed the Shoveler of Australia. The specimens we procured in the interior are precisely the same as those of the southern coast of the continent.

133. MALACORHYNCHUS MEMBRANACEUS.—*Membrane Duck.*

A beautiful duck, of delicate plumage, but little fit for the table. It is very common on most of the Australian creeks and streams, and is called the Whistling Duck. This duck is rather larger than our teal. It has a grey head, with a brown tinge, and is mottled in the breast something like the woodcock. Its eye is dark and clear, and it has a line of rose-pink running longitudinally behind it.

134. ANAS PUNCTATA, CUV.—*Common Teal.*

Somewhat larger than the English Teal, and equally good for the table. The plumage of this little bird is dark, like that of the wild duck, from which, in this respect, it hardly differs. It is the most numerous of the water birds of the interior, and was sure to be in greater or less numbers on any extensive waters we found. A pair had a brood on one of the ponds in the Depôt Glen; but the whole were taken off by a kite, Milvus affinis, that watched them land and then flew at them. So long as they kept in the water they were safe, but on land soon fell a prey to the kite.

135. LEPTOTARSIS EYTONI, GOULD.—*Eyton's Duck.*

This new and fine bird was first shot on Strzelecki's Creek by Mr. Browne; and was subsequently seen by me in considerable numbers on Cooper's Creek. Its range was not to the westward, nor was it seen north of the Stony Desert. I believe I am wrong in stating that the first was killed at the place above mentioned; for, if my memory does not deceive me, we had already secured a specimen at the Depôt. In its general plumage it is of a light brown, with a mottled breast and neck. It has long white feathers crossing the thighs, with a fine black line along them, and altogether it is a handsome bird. Under ordinary circumstances we might have fared well on this duck at Cooper's Creek; but it was so wild as to keep out of our reach, being evidently hunted by the natives of the creek.

136. BIZIURA LOBATA.—*Musk Duck.*

This ugly bird was common on the Murray, and was seen by me in hundreds on Lake Victoria; but it is seldom seen on the Darling—never to the westward of

Stanley's Range. It is an Oxford grey in colour, with a light shade of brown; he flaps only, not being able to do more than skull along the top of the water. It trusts therefore for its safety to diving; and is so quick as to be shot with difficulty. The peculiarities of this bird are two-fold: first its strong, musky smell, and secondly the large appendage the male bird has attached to the under part of the bill.

137. XEMA JAMESONII.—*Jameson's Gull.*

This bird was seen only on Cooper's Creek in lat. 27°, long. 102°; where three or four were sitting on some rocks in the middle of the water, and far out of gun's reach. They appeared to be similar to the English gull, with a slate-coloured back and wings, and white breast. On firing a shot, they rose and followed the ducks which rose at the same time up the creek, and when flying they seemed exactly to resemble the common gull. The only swan we saw was on this sheet of water, with eight or ten cormorants.

138. HYDROCHEDIDON FLUVIATILIS, GOULD.—*The Marsh Tern.*

The only specimen seen during the Expedition, was shot by Mr. Stuart on Strzelecki's Creek. It was flying up and down the creek, plunging into the water every now and then. This light and airy bird had a slate-coloured back, with black neck and breast; the crown of the head was black, delicately spotted white.

139. PHALACROCORAX SULCIROSTRIS.—*Groove-billed Cormorant.*

Of a fine dark glossy green plumage; common on all the creeks and rivers of the interior. These birds were very numerous at the Depôt, and were constantly coming

in from, and flying to the N.W. But although we afterwards penetrated some hundreds of miles in that direction, we never discovered any waters to which they might have gone.

140. PELECANUS CONSPICILLATUS, TEMM.—*The Pelican.*

Like the swans, these birds frequently passed over us, coming from, and going to that point to which all the aquatic, as well as many of the ordinary birds winged their way. We sometimes saw them low down, sweeping over the ground in circles, as if they had just risen from the water; but in neither instance could such have been the case. On several occasions we might have shot them, but they were useless, and would have encumbered us much.

141. PODICEPS GULARIS.—*Grebe.*

The common Diver; frequenting the pools and rivers of the interior: of dark brown plumage and silver-white belly. There are two or three varieties of this bird, that I have seen on other occasions; but none, with the exception of the present specimen, during the recent Expedition.

No. I.

LIST OF SPECIMENS,

AND THE NAMES OF THE VARIOUS ROCKS,

Collected during the Expedition.

1, 2, 3, 4 Tertiary Fossil, or limestone, (opalescent) from above the fossil cliffs.

5 Ferruginous sandstone.
6 Soapstone, apparently a recent deposit.
7 Gneiss.
8 Hornstone, a variety of.
9 Specular iron ore, lamellar with quartz.
10 Granite, with mammillary hematite—hornstone.
11 Specular iron ore, and iron ore highly magnetic.
12 Granite, white, a variety of.
13 Soapstone or clay, schorl, and slate with mica and chlorite.
14 Gneiss, a variety.
15 Granite, grey, both fine and coarse.
16 Granite, white, fine grained.
17 Hornstone, and mica slate (waved).
18 Clay.
19 Magnesian limestone, and limestone slaty and impure.
20 White conglomerate rock, appearing a binary granite.
21 Indurated clay.
22 Silicious pebbles.
23 Silicious rock, with veins of quartz.

24 Silicious rock.
25 Rock composed principally of silica and alumen forming sandstone.
26 Milky quartz.
27, 28 Rounded balls, composed of sand and clay, cemented by oxide of iron; hollow, but without crystals; rounded by the action of water.
29 Hornstone.
30 Granite, grey, a variety.
31 Ferruginous sandstone.
32 Silicious rock, with veins of quartz.
33 Mica slate.
34 Quartz, indurated with red veins.
35 Silicious rock, dusky.
36 Silicious rock, white.
37 Gypsum, or sulphate of lime.
38 Quartz veins from slate; trap rock, containing hornblende and feldspar; limestone, recent, with clay and slate imbedded.
39 Impure and slaty limestone; hornslate, a variety.
40 Hemætite, a silicious oxide of iron; quartz veins in slate; silicious rock; chalcedony; sandy clay.
41 Indurated and dusky quartz.
42 Quartz, a hard, fine-grained dusky variety.
43 Ditto ditto ditto
44 Silicious rock, appearing a knob, from a slate formation
45 Limestone (fibrous).
46 Silicious rock.
47 Horn slate.
48 Silicious rock; iron-stone pebbles.
49 Hornstone.
50 Quartz.
51 Quartz.

52 Trap rock.
53 Quartz.
54 Hornstone.
55 White rock.
56 White sandstone.
57 Sandstone.
58 Sandstone.
59 Silicious oxide of iron.
60 Gypsum.

It will be seen, by an inspection of the map, that there is a large interval of low depressed country, between Stanley's and Grey's Ranges. The rock formation on the latter being almost exclusively of one kind. Beyond Grey's Range, no elevation in the interior, on the N. W. line traversed by the Expedition, was seen; but on the Stony Desert the fragments of rock, with which it was covered, were composed of indurated quartz, rounded by attrition, and coated with oxide of iron. North of the Stony Desert, sandstone occurred in the bed of Eyre's Creek, and milky quartz cropped out of the ground, in lat. 25° 35′, and in lon. 138° 39′. The valley of Cooper's Creek was, however, bounded in by low quartzose hills, covered with sand. The general level of the interior was otherwise ferruginous clay, on which the long sandy doones or ridges rested, excepting where their regularity was broken by flooded plains. The clay rested on sandstone, which, with a few exceptions, where fossil tertiary limestone occurred, similar to that of the Murray cliffs, was ferruginous sandstone, at the depth of two feet and a half or three feet.

No. II.

LOCALITIES

OF THE DIFFERENT GEOLOGICAL SPECIMENS,

Collected by the Central Australian Expedition.

1, 2, 3, 4 From the cliffs of the Murray River, both above and below the great north-west bend, bounding the valley of that river, with an average height of 150 or 200 feet.

5 From the sandstone hills on the Murray.

6 From Carnapaga, on the first creek to the N.W. of the Darling River.

7 From station No. 3, on the Barrier or Stanley's Range, Mount Darling.

8 From the Glen of Yancowinna.

9 From the Iron Ridge, south of the Glen of Yancowinna.

10 From Mount Bourke, on Stanley's Range, No. 1 station.

11 From the Iron Stone Hill on the Range (Piesse's Knob).

12 From a central hill on the Range.

13 From a central hill.

14 From Lewis's hill.

15 From the Black Hill Mount Robe.

16 From a valley in the Range.

17 From the bed of the Creek.

18 From the Rocky Glen.

19 From the outer Range to the westward of the Barrier, Station No. 1.

20 From the same, Station No. 2.
21 From the Stony Creek.
22 Gathered from the plains between the creeks to the west of the Ranges.
23 From a distant hill in Stanley's Range—the base.
24 From the summit of the same.
25 From a rugged detached hill.
26 From a small hill near the Range.
27 From the nearer plains.
28 Ditto ditto.
29 From a water-worn hill near Flood's Creek.
30 From Station No. 38, Mount Wood.
31 From the summit of the Range, Station No. 39.
32 From Station No. 40. Mount Lyell, fifty miles east.
33 From some low hills, near Flood's Creek.
34 From the last hill on Stanley's Barrier Range.
35 From the Magnetic Hill, Mount Arrowsmith.
36 From the Table Hill, Mount Browne.
37 From the White Hill.
38 From the Depôt Glen.
39 From the Black Hill, Mount Robe.
40 Ditto ditto ditto
41 From the summit of Grey's Range.
42 From the last hill to the north, lat. 28° 26′.
43 From the most distant hill to the north-east.
44, 45, 46 From the Depôt Glen.
47, 48 From the Plains to the north of the Red Hill, Mount Poole.
49, 50, 51, 52, 53, 54 From various parts of the Depôt Glen, and the Range with which it is connected. This Range is separated from the main ranges, but still occupies the eastern side of the high land, running between the eastern and western waters.

From the summit of the Red Hill, Mount Poole.

From the base of the same hill.

From the summit (2nd specimen).

From the plains north of the Depôt.

From the plains.

BOTANICAL APPENDIX,

BY

ROBERT BROWN, Esq., D.C.L., F.R.S., F.L.S., &c.

My friend, Captain Sturt, having placed at my disposal the Collection of Plants formed in his recent Expedition into the Southern Interior of Australia, I am desirous of giving some account of the principal novelties it contains.

The collection consists of about one hundred species, to which might be added, if they could be accurately determined, many other plants, chiefly trees, slightly mentioned in the interesting narrative, which is about to appear, and to which the present account will form an Appendix. I may also observe, in reference to the limited number of species, that Captain Sturt and his companion, Mr. Brown, seem to have collected chiefly those plants that appeared to them new or striking, and of such the collection contains a considerable proportion.

In regard too to such forms as appear to constitute genera hitherto undescribed, it greatly exceeds the much more extensive herbarium, collected by Sir Thomas Mitchell in his last expedition, in which the only two plants proposed as in this respect new, belong to genera already well established, namely, Delabechia to Brachychiton, and Linschotenia to Dampiera.

In Captain Sturt's collection, I have been obliged, from the incomplete state of the specimens, to omit several species, probably new, from the following account, in which the plants noticed, chiefly new genera and species, are

arranged according to the order of families in the Prodromus of De Candolle.

BLENNODIA.

Cruciferarum genus, prope Matthiolam.

CHAR. GEN.—*Calyx* clausus, foliolis lateralibus basi saccatis. *Petala* æqualia, laminis obovatis. *Stamina:* filamentis edentulis. *Ovarium* lineare. *Stylus* brevissimus. *Stigma* bilobum dilatatum. *Siliqua* linearis valvis convexiusculis, stigmate coronata, polysperma. *Semina* aptera pube fibroso-mucosa tecta! *Cotyledones* incumbentes!

Herba (v. Suffrutex) *erecta ramosa canescens, pube ramosa;* foliis *lato-linearibus remotè dentatis;* racemis *terminalibus.*

1. BLENNODIA *canescens.*

LOC. In arenosis depressis.

DESC. Suffruticosa, sesquipedalis, caule ramisque teretibus. Folia vix pollicaria paucidentata. Racemi multiflori, erecti, ebracteati. Flores albicantes. Calyx incano-pubescens. Petalorum ungues calyce paulo longiores. Stamina 6, tetradynama, filamentis linearibus membranaceis apice sensim angustato.

OBS. This plant has entirely the habit, and in many important points the structure of Matthiola, near which in a strictly natural method it must be placed; differing, however, in having incumbent cotyledons, and in the mucous covering of its seeds. The mucus proceeds from short tubes covering the whole surface of the testa, each containing a spiral fibre, which seems to be distinct from the membrane of the tube. A structure essentially similar is known to occur generally in several families: to what extent or in what genera of Cruciferæ it may exist, I have not ascertained; it is not found, however, in those species of Matthiola which I have examined.

STURTIA.

Malvacearum genus, proximum Gossypio, affine etiam Senræ.

CHAR. GEN.—*Involucrum* triphyllum integerrimum. *Calyx* 5-dentatus, sinubus rotundatis. *Petala* cuneato-obovata, basi inæquilatera. *Columna* staminum polyandra. *Ovaria* 5, polysperma. *Styli* cohærentes. *Stigmata* distincta linearia. *Pericarpia*. . . *Semina*. . .
Suffrutex *orgyalis glaber*; foliis *petiolatis obovatis integerrimis*; floribus *pedunculatis solitariis*.

2. STURTIA *Gossypioides*.

LOC. "In the beds of the creeks on the Barrier Range."—*D. Sturt*.

DESC. Suffrutex orgyalis glaber. Folia ramorum alterna, diametro unciali, trinervia; petiolo folium subæquanti, basi in stipulam subscariosam adnatam dilatato. Pedunculi vel potius rami floriferi subopposititifolii nec verè axillares uniflori, juxta apicem folio nano petiolato stipulis 2 distinctis stipato instructi. Involucrum foliaceum venosum, foliolis distinctis, cordatis, punctis nigricantibus glandulosis conspersis. Calyx dentibus acutis, sinubus rotundatis. Petala sesquipollicaria, uti calycis tubus glanduloso-punctata glandulis nigricantibus semi-immersis, purpurea basibus atrò purpureis margine barbatis. Columna staminum e basi nuda super ad apicem usque antherifera: antheris reniformibus, loculis apice confluentibus. Pollen hispidum.

OBS. Sturtia is no doubt very nearly related to Gossypium, from which it differs in the entire and distinct leaves of its foliaceous involucrum, in the sharp teeth and broad rounded sinuses of the calyx, and possibly also in its fruit and seeds, which are, however, at present unknown. They ı ee in the texture and remarkable glands of the calyx, ıd in the structure of the columna staminum. Senra,

which like Sturtia, has the foliola of its three-leaved involucrum distinct and entire, differs from it in having its calyx 5-fid with sharp sinuses, in the absence of glands, in the reduced number of stamina, and in its dispermous ovaria.

3. TRIBULUS (*Hystrix*) lanatus, foliis 8-10-jugis, fructibus undique tectis spinis subulatis longitudine inæqualibus: majoribus sparsis longitudinem cocci superantibus.

LOC. "In collinis arenosis. Lat. 26°." D. Sturt.

DESC. Herba diffusa, sericea, incana. Folium majus cuiusque paris 8-10 jugum, foliolis ovatis. Flores magni. Calyx æstivatione leviter imbricatâ. Petala calyce duplo longiora. Stamina decem, antheris linearibus.

OBS. I. A species nearly related to T. Hystrix, found on the west coast of Australia, or on some of its islands, in the voyage of the Beagle, may be distinguished by the following character. *Tribulus (occidentalis)* sericeo-lanatus, foliis suboctojugis, coccis undique densè armatis: spinis omnibus conico-subulatis longitudine invicem æqualibus. These two species differ from all others in the uniform shape of the spines, which equally cover the whole external surface of the fruit.

OBS. II. The American species of the Linnean genus Tribulus are distinguishable from the rest of the published species, by having ten monospermous cocci, by their persistent calyx, and the absence of glands subtending the 5 filaments opposite to the sepals.

This tribe was originally separated as a genus by Scopoli, under the name of Kallstrœmia, which has been recently adopted by Endlicher.

Another tribe exists in the intratropical part of the Australian continent, to which, nearly 40 years ago, in the Banksian Herbarium, I gave the generic name of

Tribulopis, and which may readily be distinguished by the following characters.

TRIBULOPIS.

Calyx 5-partitus deciduus. *Petala* 5. *Stamina* decem (nunc 5.) *Filamenta* quinque, sepalis opposita, basi glandula stipata. *Ovaria* 5, monosperma. *Cocci*, præter tubercula 2 v. 4 baseos, læves.

Herbæ *annuæ prostratæ ;* foliis *omnibus alternis !*

Tribulopis (*Solandri.*) foliis bi-trijugis, foliolis subovatis inæquilateris, coccis basi quadrituberculatis.

Loc. In ora orientali intratropica Novæ Hollandiæ prope Endeavour River, anno 1770. D.D. Banks et Solander.

Tribulopis (*angustifolia*), foliis 3-4 jugis (raro bijugis), foliolis linearibus, tuberculis baseos coccorum abbreviatis.

Loc. Ad fundum sinus Carpentariæ annis 1802 et 3. R. Brown.

Tribulopis (*pentandra*), foliis bijugis, foliolis oblongo-lanceolatis pari superiore duplo majore, floribus pentandris, petalis lanceolatis.

Loc. In insulis juxta fundum sinus Carpentariæ anno 1803. R. Brown.

4. Crotalaria (*Sturtii*) tomentosa, foliis simplicibus ovalibus utrinque sericeo-tomentosis, petiolis apice geniculatis, racemis terminalibus multifloris.

Loc. " On the top of the ridges in pure sand, from S. Lat. 28° to 26°." D. Sturt.

Desc. Frutex 2-3-pedalis (D. Sturt). Folia alterna, ovata passim ovalia, obtusa, sesquipollicem longa, utrinque velutina; petiolus teres basi vix crassiore apice curvato. Racemus terminalis ; pedicellis approximatis calycem vix æquantibus apice bibracteatis. Flores sesquipollicares. Calyx 5-fidus ; laciniis lanceato-linearibus acutis subæqualibus tubum paulo superantibus. Corolla sordidè flava, calyce plus duplo major. Vexillum magnum, basi simplici nec auriculata, late ovatum, acutum. Alæ vexillo fere dimidio breviores, basi semicordata. Carina longitudine vexilli, acuminata, basi gibbosa, ibique

aperta marginibus tomentosis. Stamina 10 diadelpha, simplex et novemfidum. Antheræ quinque majores lineares, juxta basin affixæ; quinque reliquæ ovatæ, linearibus triplo breviores, incumbentes. Ovarium lineare, multi-ovulatum. Stylus extra medium et præsertim latere interiore barbatum. Stigma obtusum. Legumen desideratur.

Obs. A species very nearly related to C. Sturtii, having flowers of nearly equal size, and of the same colour and proportion of parts, found in 1818, by Mr. Cunningham, on the north-west coast of Australia, and since in Captains Wickham and Stokes' Voyage of the Beagle; may be distinguished by the following character:— *Crotalaria* (*Cunninghamii*) tomentosa, foliis simplicibus ovali-obovatis utrinque sericeo-tomentosis, petiolis apice curvatis, pedunculis axillaribus unifloris.

5. Clianthus (*Dampieri*) herbaceus prostratus sericeo-villosissimus, foliolis oppositis (rarissime alternis) oblongis passim lineari-oblongis obovatisve, pedunculis erectis scapiformibus, floribus subumbellatis, calycibus 5-fidis sinubus acutis, ovariis (leguminibusque immaturis) sericeis.

Clianthus Oxleyi *A. Cunningham in Hort. Soc. Transac. II. series, vol.* 1. *p.* 522.

Donia speciosa *Don, Gen. Syst. vol.* 2. *p.* 468.

Clianthus Dampieri *Cunningham, loc. cit.*

Colutea Novæ Hollandiæ, &c. *Woodward in Dampier's Voy. vol.* 3. *p.* 111. *tab.* 4. *f.* 2.

Loc. "In ascending the Barrier Range near the Darling, about 500 feet above the river." D. Sturt.

Obs. In July, 1817, Mr. Allan Cunningham, who accompanied Mr. Oxley in his first expedition into the Western Interior of New South Wales, found his Clianthus Oxleyi on the eastern shore of Regent's Lake, on the River Lachlan. The same plant was observed on the Gawler Range, not far from the head of Spencer's Gulf

by Mr. Eyre in 1839, and more recently by Captain Sturt, on his Barrier Range near the Darling. I have examined specimens from all these localities, and am satisfied that they belong to one and the same species.

In March (not May) 1818, Mr. Cunningham, who accompanied Captain King in his voyages of survey of the coasts of New Holland, found on one of the islands of Dampier's Archipelago, a plant which he then regarded as identical with that of Regent's Lake. This appears from the following passage of his MS. Journal:—

"I was not a little surprised to find Kennedya speciosa, (his original name for Clianthus Oxleyi), a plant discovered in July 1817, on sterile bleak open flats, near Regent's Lake, on the River Lachlan, in lat. 33° 13′ S. and long. 146° 40′ E. It is not common, I could see only three plants, of which one was in flower.' 'This island is the Isle Malus of the French." Mr. Cunningham was not then aware of the figure and description in Dampier above referred to, which, however, in his communication to the Horticultural Society in 1834, he quotes for the plant of the Isle Malus, then regarded by him as a distinct species from his Clianthus Oxleyi of the River Lachlan. To this opinion he was probably in part led by the article Donia or Clianthus, in Don's System of Gardening and Botany, vol. 2. p. 468, in which a third species of the genus is introduced, founded on a specimen in Mr. Lambert's Herbarium, said to have been discovered at Curlew River, by Captain King. This species, named Clianthus Dampieri by Cunningham, he characterises as having leaves of a slightly different form, but its principal distinction is in its having racemes instead of umbels; at the same time he confidently refers to Dampier's figure and description, both of which prove the flowers to be umbellate, as he describes those of his Clianthus Oxleyi to be. But as the flowers in this last

plant are never strictly umbellate, and as I have met with specimens in which they are rather corymbose, I have no hesitation in referring Dampier's specimen, which many years ago I examined at Oxford, as well as Cunningham's, to Clianthus Dampieri. This specimen, however, cannot now be found in his Herbarium, as Mr. Heward, to whom he bequeathed his collections, informs me: nor can I trace Mr. Lambert's plant, his Herbarium having been dispersed.

Since the preceding observations were written, I have seen in Sir William Hooker's Herbarium, two specimens of a Clianthus, found by Mr. Bynoe, on the North-west coast of Australia, in the voyage of the Beagle. These specimens, I have no doubt, are identical with Dampier's plant, and they agree both in the form of leaves and in their subumbellate inflorescence with the plant of the Lachlan, Darling, and the Gawler Range. From the form of the half-ripe pods of one of these specimens, I am inclined to believe that this plant, at present referred to Clianthus will, when its ripe pods are known, prove to be sufficiently different from the original New Zealand species to form a distinct genus, to which, if such should be the case, the generic name Eremocharis may be given, as it is one of the greatest ornaments of the desert regions of the interior of Australia, as well as of the sterile islands of the North-west coast.

CLIDANTHERA.

CHAR. GEN.—*Calyx* 5-fidus. *Petala* longitudine subæqualia. *Stamina* diadelpha: *antheræ* uniformes; loculis apice confluentibus, valvula contraria ab apice ad basin separanti dehiscentes! *Ovarium* monospermum. *Stylus* subulatus. *Stigma* obtusum. *Legumen* ovatum, lenticulari-compressum, echinatum.

Herba, v. Suffrutex, *glabra, glandulosa ; ramulis angulatis.* Folia *cum impari pinnata ; foliolis oppositis, subtus glandulosis.* Stipulæ *parvæ, basi petioli adnatæ.* Flores *spicati, parvi, albicantes.*

Obs. Subgenus forsan Psoraleæ, cui habitu simile, foliis calycibusque pariter glandulosis; diversum dehiscentia insolita antherarum!

6. Clidanthera *psoralioides.*

Loc. Suffrutex bipedalis in paludosis. D. Sturt.

Desc. Herba, vel suffrutex, erecta, bipedalis, glabriuscula. Ramuli angulati. Folia cum impari pinnata, 4-5-juga ; foliola opposita, lanceolata, subtus glandulis crebris parvis manifestis, marginibus scabris. Spicæ densæ, multifloræ. Calyx 5-fidus, parum inæqualis, acutus, extus glandulis dense conspersus. Corolla : *Vexillum* lamina oblonga subconduplicata nec explanata, basi simplici absque auriculis; ungue abbreviato. *Alæ* vexillo paulo breviores, carinam æquantes, laminis oblongis, auriculo baseos brevi. *Carinæ petala* alis conformes. Stamina diadelpha, simplex et novemfidum; antheræ subrotundæ v. reniformes, valvula ventrali anthera dimidio minore subrotunda. Ovarium hispidum ovulo reniformi. Legumen basi calyce subemarcido cinctum, echinatum. Semen reniforme, absque strophiola ; integumento duplici. Embryo viridis ; cotyledones obovatæ, accumbentes.

Obs. This plant, which in some respects resembles certain species of Glycyrrhiza, appears to be not unfrequent in the southern interior. It was found in one of the early expeditions of Sir Thomas Mitchell, and Mrs. (Capt.) Grey, observed it on the flats of the Murray.

7. Swainsona (*grandiflora*) suffruticosa pubescens, foliis 8-10-jugis inexpansis incano-tomentosis; foliolis oblongis obtusis retusisve : adultis semiglabratis : rachi subincana, racemo multifloro folium superante, bracteolis lanceato-linearibus acutis æquantibus tubum calycis albo-

lanati quinque fidi: laciniis acutissimis longitudine ferè tubi, vexillo bicalloso.

Loc. "Common on the rich alluvial flats of the Murray and Darling." D. Sturt.

Obs. This plant is, perhaps, not specifically distinct from S. Greyana Lindl. Bot. Regist. 1846, tab. 66, of which the figurè is a good representation of S. grandiflora in every respect, except in the form and proportions of the teeth of the calyx and lateral bracteæ. In these points it exactly agrees with complete specimens, for which I am indebted to Mrs. Grey, from the banks of the Murray, and Mr. Eyre's station (Moorundi), about 98 miles from Adelaide, where it was first found in November, 1841. The following characters, if constant, will sufficiently distinguish it from S. grandiflora.

Swainsona (*Greyana*) suffruticosa pubescens, foliis 5-9-jugis inexpansis incano-tomentosis; foliolis oblongis obtusis retusisve: adultis semiglabratis: rachi subincana, racemis multifloris folio longioribus, bracteis lateralibus lanceato-linearibus brevioribus tubo calycis albo-lanati quinque-dentati: dentibus obtusiusculis tubo dimidio brevioribus, vexillo bicalloso.

In the second edition of Hortus Kewensis, (vol. 4. p. 326), I excluded from the generic character of Swainsona the calli of the vexillum, having observed two Australian species where they were wanting, but which in every other respect appeared to me referable to this genus; for the same reason I continue to introduce the calli, where they exist, into the specific characters, as was done in Hortus Kewensis, l. c. In the generic character of Swainsona, given in De Candolle's Prodromus, (vol. 2. p. 271), the calli of vexillum are transferred to the calyx; this can only be regarded as an oversight, which perhaps has been corrected by the author himself, and which, so

far as I know, has never been adopted in any more recent work in which the generic character of Swainsona is given.

8. Swainsona? (*laxa*) glabra, caule ramoso, foliis 6-7-jugis; foliolis oblongo-ovalibus obtusis, racemis elongatis laxis, pedicellis calyce glabro quinquedentato brevioribus, bracteolis subulatis, vexillo ecalloso.

Loc. Statio nulla indicata, in Herb. D. Sturt.

Obs. There is something in the aspect of this plant not entirely agreeing with the other species of the genus; and as the fruit is unknown, and the flowers yellow, I refer it with a doubt to Swainsona.

PENTADYNAMIS.

Char. Gen.—*Calyx* 5-fidus subæqualis. *Vexillum* explanatum, callo baseos laminæ in unguem decurrenti. *Carina* obtusa, basin versus gibba, longitudine alarum. *Stamina* diadelpha; *antheris* 5 majoribus linearibus, reliquis ovatis. *Ovarium* polyspermum. *Stylus* e basi arcuata porrectus, postice barbatus. *Legumen* compressum.

Herba (Suffrutex sec. D. Sturt), *bipedalis sericeo-incana*; caule *angulato erecto*. Folia *ternata*; *foliolis sessilibus, linearibus, obtusis*. Flores *racemosi, flavi*.

9. Pentadynamis *incana*.

Loc. "On sand-hills with Crotalaria Sturtii." D. Sturt.

Desc. Herba erecta, ramosa, sericeo-incana. Folia alterna, ternata; petiolo elongato, teretiusculo, foliolo terminali longiore vix unciali. Racemi multiflori, erecti; pedicelli subæquantes calycem. Bracteolæ subulatæ, infra apicem pedicelli, basin calycis attingentes. Calyx 5-fidus; laciniis acutis tubum æquantibus. Corolla flava, calyce plus duplo longior. Vexillum explanatum, basi absque auriculis sed callo in unguem decurrenti ibique barbato auctum. Carina infra medium gibba pro

receptione baseos styli. Staminum antheræ majores lineares, basi vel juxta basin affixæ; 5 minores ovatæ, incumbentes. Ovarium lineare, pubescens. Stigma terminale, obtusum. Legumen immaturum incanum, stylo e basi arcuata porrecto terminatum, calyce subemarcido subtensum.

Obs. In the collection of the plants of his last expedition, presented to the British Museum by Sir Thomas Mitchell, there is a plant which seems to belong to the genus Pentadynamis, which is probably, therefore, one of the species of Vigna, described by Mr. Bentham.

10. Cassia (*Sturtii*), tomentoso-incana, foliis 4-jugis foliolis lanceolato-linearibus planis: glandula depressa inter par infimum, racemo corymboso paucifloro cum pedunculo suo folium paulo superante v. æquante, calyce tomentoso.

Loc. "In sandy brushes of the Western interior." D. Sturt.

Obs. Species proxima C. artemisiæfoliæ De Cand. Prodr. quæ Cassia glaucescens Cunningh. MSS. 1817, cui foli ola teretiuscula, et racemus corymbosus cum pedunculo suo folio brevior.

11. Cassia (*canaliculata*), cinerascens pube tenuissima, foliis 2-jugis (raro 1-jugis) foliolis angustato-linearibus canaliculatis: glandula inter par inferius et dum unijuga inter terminale, calycibus glabriusculis, racemis corymbosis paucifloris folio brevioribus.

Loc. "In the bed of the creeks of the Barrier Range, about thirty-six miles from the Darling, in lat. 32° S." D. Sturt.

Obs. Proxima C. eremophilæ Cunningh. MSS. quæ sequentibus notis a Cassia phyllodinea et C. zygophylla, *Benth.* facile distinguenda.

Cassia (*eremophila*), glabra, foliis unijugis rarò passim bijugis;

foliolis linearibus canaliculatis latitudine racheos linearis aversæ, corymbis paucifloris folio brevioribus.

Loc. In desertis prope fluvium Lachlan, anno 1817, detexit. D. Cunningham.

Cassia (*zygophylla*), glabra foliis unijugis; foliolis linearibus planis rachi duplo latioribus, corymbis paucifloris folio brevioribus.

Cassia zygophylla, *Benth. in Mitch. trop. Austr. p.* 288.

Another species nearly related to C. zygophylla is readily distinguished by the following character.

Cassia (*platypoda*), glabra, foliis unijugis; foliolis linearibus apiculo recurvo duplo angustioribus rachi aversa lanceolato-lineari.

Loc. Juxta fluvium Murray, anno 1841, detexit Domina Grey.

12. Cassia (*phyllodinea*), canescens pube arctissimè adpressa, phyllodiis aphyllis linearibus planis falcatis aversis, calycibus glabris, legumine plano-compresso.

Loc. In Herbario D. Sturt specimen exstat nulla stationis aut loci indicatione, sed eandem speciem ad fundum sinus Spencer's gulf dicti in sterilibus apricis anno 1802 legi.

Desc. Frutex quadripedalis, ramosissimus. Phyllodia semper aphylla, aversa, linearia, acuta, basi attenuata, plus minusvè falcato-incurva, biuncialia, $\frac{1}{6}$ circiter unciæ lata, exstipulata, paginis pube arctissime adpressa canescentibus, margine superiore glandula unica depressa obsoleta. Flores flavi, in umbella axillari 2-3 flora.

Obs. Cassia phyllodinea is one of the very few species of the genus, which, like the far greater part of New Holland Acaciæ lose their compound leaves, and are reduced to the footstalk, or phyllodium, as it is then called, and which generally becomes foliaceous by vertical

compression and dilatation. A manifest vertical compression takes place in this species of Cassia.

A second species, Cassia circinata of Benth. in Mitch. trop. Austr. p. 384, is equally reduced to its footstalk, but which is without manifest vertical compression. To this species may perhaps be referred Cassia linearis of Cunningham MS., discovered by him in 1817, but which appears to differ in having a single prominent gland about the middle of its phyllodium: Bentham's plant being entirely eglandular.

These two, or possibly three species, belong to the desert tracts of the South Australian interior. In the same regions we have another tribe of Cassiæ closely allied to the aphyllous species; they have only one pair of foliola which are caducous, and whose persistent footstalk is more or less vertically compressed. Along with these, and nearly related to them, are found several species of Cassia, having from two to four or five pairs of foliola which are narrow, but their footstalks are without vertical compression, and their foliola are caducous, chiefly in those, however, which have only two pairs.

PETALOSTYLIS.

Cæsalpinearum genus, Labicheæ proximum.

CHAR. GEN.—*Calyx* 5-phyllus, æqualis. *Petala* 5 subæqualia, patentia. *Stamina: Filamenta* quinque sepalis opposita, quorum *tria antherifera*, antheris basifixis linearibus, *duo reliqua* castrata. *Ovarium* oligospermum. *Stylus* maximus, petaloideus, trilobus, lobo medio longiore axi incrassata desinente in *stigma* obtusum simplex!

Frutex *glaber, erectus.* Folia *alterna, pinnata cum impari, foliolis alternis.* Racemi *axillares, pauciflori.* Flores *flavi.*

13. PETALOSTYLIS *Labicheoides.*

Loc. "In the bed of a creek along with Sturtia." D. Sturt.

OBS. Eadem omnino species exstat inter plantas in Insulis Archipelagi Dampieri juxta oram septentrio-occidentalem Novæ Hollandiæ in itinere navis Beagle dictæ lectas.

DESC. Frutex facie fere Cassiæ et Labicheæ. Folia alterna, cum impari pinnata, foliolis alternis brevissimè petiolatis oblongo-lanceolatis cum mucronulo terminali paulo majore. Stipulæ parvæ caducæ. Racemi pauciflori, axillares, folio breviores. Alabastrum ovali-oblongum acutiusculum. Calyx viridis, sepalis subæqualibus oblongis acutis, æstivatione imbricatis. Petala quinque subæqualia, oblonga, flava æstivatione imbricata, sepalis sesquilongiora. Stamina 3 antherifera æqualia, filamentis abbreviatis, antheris acutis bilocularibus, loculis sulco longitudinali insculptis; 2 reliqua rudimenta parva subfiliformia. Ovarium sessile, lineare, 3-4-spermum. Stylus lobo medio triplo longiore, oblongo-lanceolato, lobis lateralibus auriculiformibus semiovatis obtusis. Stigma imberbe.

OBS. The structure of the style, which forms the only important character of this genus, so far as the specimens enable me to judge, is so remarkable and peculiar, as to render it necessary to state, that I have found it quite uniform in all the flowers I have examined; namely, in four immediately before, and in three after expansion.

PODOCOMA.

CHAR. GEN. — *Involucrum* imbricatum, foliolis angustis acutis. *Ligulæ* pluriseriales, angustissimæ, femineæ. *Flosculi* pauciores hermaphrodito-masculi. Ligularum pappo capillari, stipitato, denticulato. *Receptaculum* epaleatum.

Herba *humilis, setosa;* caule *densé, foliato;* folia *petiolata, cuneata, incisa, setis albis conspersa.*

14. PODOCOMA *cuneifolia.*

LOC. In Herbario D. Sturt absque ulla indicatione loci vel stationis.

OBS. This plant appears to be generically distinct from Erigeron, particularly in its stipitate pappus. The specimens, however, are so incomplete, that I am unable to determine whether what I have considered stem, may not be a branch only.

LEICHARDTIA.

CHAR. GEN.—*Calyx* 5-partitus. *Corolla* urceolata; tubo intus imberbi; fauce annulo integerrimo incrassata. *Corona staminea* 5-phylla, foliolis antheris oppositis, iisque brevioribus, indivisis. *Antheræ* membrana (brevi) terminatæ. *Massæ Pollinis* erectæ basi affixæ. *Stigma* vix divisum.

Suffrutex *volubilis*; foliis *linearibus, fascicularibus, extra-alaribus*; folliculis *ventricosis ovato-oblongis.*

15. LEICHHARDTIA *australis.*

Doubah *Mitchell, trop. Austr. p.* 85.

LOC. "Common on the Murray and in the interior." D. Sturt.

DESC. Suffrutex pubescens, subcinereus; ramis striatisnec omnino teretibus. Folia sesquipollicaria, linearia, acuta. Fasciculi multiflori. Calycis foliola obtusa, pube tenui cinerascentia. Corolla glabra; tubo absque squamulis denticulisve, ventricoso; limbo vix longitudine tubi, laciniis conniventibus sinistrorsum imbricatis. Coronæ foliola e basi dilatata adnata linearia, indivisa. Massæ Pollinis (Pollinia) lineares.

OBS. Doubah was originally found by Sir T. Mitchell, but with fruit only, in one of his journeys, and also in his last expedition; and, according to him, the natives eat the seed-vessel entire, preferring it roasted. Captain Sturt, on the other hand, observes, that the natives of the districts where he found it, eat only the pulpy seed-vessel, rejecting the seeds.

16. JASMINUM *lineare*. Br. prodr. 1. p. 521.

Jasminum Mitchellii. *Lindl. in Mitch. trop. Austr. p.* 365.

OBS. In Captain Sturt's collection there are perfect specimens of this plant, on which a few remarks may be here introduced, chiefly referring to its very general existence in the sterile regions of the interior of Southern Australia, and even extending to the north-west coast.

The species was established on specimens which I collected in 1802, in the sterile exposed tract at the head of Spencer's Gulf. With these I have compared and found identical Mr. A. Cunningham's specimens gathered in the vicinity of the Lachlan, in 1817; Captain Sturt's, in his earlier expeditions, from the Darling; those of Sir Thomas Mitchell, in his different journeys; and specimens collected in one of the islands of Dampier's Archipelago. In this great extent of range, it exactly agrees with a still more remarkable plant, and one much less likely to belong to a desert country, namely, Clianthus Dampieri.

I have considered Jasminum Mitchellii as hardly a variety of J. lineare, the character of this supposed species depending on its smooth leaves, and its axillary nearly sessile corymbi or fasciculi, which are much shorter than their subtending leaves; but even in the specimen contained in the collection presented to the British Museum by Sir Thomas Mitchell, the young branches, as well as the pedunculus and pedicelli, are covered with similar pubescence, and in the same degree as that of J. lineare; the specimens from Dampier's Archipelago have leaves equally smooth, but have the inflorescence of J. lineare; and I have specimens of J. lineare in which, with the usual pubescence of that species, the inflorescence is that of Mitchellii. Among Sir Thos. Mitchell's collection at the

Museum, there is a Jasminum not noticed by Professor Lindley, which, though very nearly related to J. lineare, and possibly a variety only, may be distinguished by the following character.

Jasminum (*micranthum*) cinereo-pubescens, foliis ternatis; foliolis lanceato-linearibus, pedunculis axillaribus 1-3 floris, corollæ laciniis obtusis dimidio tubi brevioribus.

17. Goodenia (*cycloptera*) ramosissima pubescens, foliis radicalibus serrato-incisis; caulinis lanceolato-ellipticis obsoletè serratis in petiolum attenuatis, pedunculis axillaribus unifloris folia subæquantibus, seminibus orbiculatis membrana angusta cinctis.

Loc. Indicatio nulla stationis in Herb. D. Sturt.

18. Scævola (*depauperata*), erecta ramosissima, ramis alternis; ultimis oppositis divaricatis, foliis minimis sublinearibus: ramorum alternis ramulorum oppositis, pedunculis e dichotomiis ramulorum solitariis unifloris.

Loc. "In salt ground, in lat. 26° S." D. Sturt.

Desc. Herbacea, vix suffruticosa, adulta glabriuscula, erecta, ramosissima. Rami ramulique angulati; ultimi oppositi, indivisi, divaricati, apice diphylli, foliis minimis et rudimento minuto floris abortivi. Folia sessilia, linearia, acuta, brevissima, ramos subtendentia alterna, ramulos ultimos brachiatos opposita. Pedunculi e dichotomiis ramulorum ultimorum penultimorumque solitarii, uniflori, ebracteati. Calyx: limbo supero quinquepartito; laciniis lineari-lanceatis, æqualibus, pubescentibus. Corolla: tubo hinc ad basin usque fisso; limbo unilabiato, 5-partito; laciniis lanceolatis, æqualibus, marginibus angustis induplicatis, extus uti tubus pubescentibus, intus glabris trinerviis, nervo medio venoso. Stamina: filamenta distincta, anguste linearia, glabra, axi incrassata; antheræ liberæ, lineares, imberbes, basi affixæ, loculis longitudinaliter dehiscentibus. Ovarium biloculare? loculis monospermis, ovulis erectis. Stylus cylindraceus, glaber. Stigmatis indusium margine ciliatum et

extus pilis copiosis longis strictis acutis albis tectum v. cinctum.

19. EREMOPHILA (*Cunninghamii*) arborescens, foliis alternis linearibus mucronulo recurvo, sepalis fructûs unguiculatis eglandulosis, corolla extus glabra.

Eremophila? arborescens, Cunningh. MSS. 1817.

Eremodendron Cunninghami, De Cand. prodr. xi. p. 713. Delessert ic. select. vol. v. p. 43. tab. 100. (ubi error in num. ovulorum.)

Loc. "In the sandy brushes of the low western interior, not beyond lat. 29° S." D. Sturt.

OBS. The genus Eremophila was founded on very unsatisfactory materials, namely, on two species, E. oppositifolia and alternifolia, which I found growing in the same sandy desert at the head of Spencer's Gulf in 1802, the only combining character being the scariose calyx, which I inferred must have been enlarged after flowering. This, however, proves not to be the case in E. alternifolia, which Mrs. Grey has found in flower towards the head of St. Vincent's Gulf: and from analogy with other species since discovered, it probably takes place only in a slight degree in E. oppositifolia, whose expanded flowers have not yet been seen.

In 1817, Mr. Cunningham, in Oxley's first expedition, discovered a third and very remarkable species in flower and unripe fruit, which he referred, with a doubt, to Eremophila, and which M. Alphonse De Candolle has recently separated, but as it seems to me on very insufficient grounds, with the generic name of Eremodendron, established entirely on Mr. Cunningham's specimens. A fourth species has lately been described by Mr. Bentham, in Sir Thos. Mitchell's narrative of his Journey into

Tropical Australia; and some account of a fifth is given in the following article.

These five species may be arranged in four sections, distinguished by the following characters:

α. Folia opposita; sepala unguiculata.
Eremophila oppositifolia. *Br. prodr.* 1. *p.* 518.

β. Folia alterna; sepala unguiculata, eglandulosa; antheræ exsertæ.
E. Cunninghamii.

γ. Folia alterna; sepala brevè unguiculata, eglandulosa; stamina inclusa.
Eremophila Mitchelli. *Benth. in Mitch. trop. Austr. p.* 31.
Eremophila Sturtii.

δ. Folia alterna glanduloso-tuberculata, sepala cuneato-obovata, sessilia, glandulosa.
E. alternifolia. *Br. prodr.* i. *p.* 518.

This last species might be separated from Eremophila; it is not however referable to Stenochilus, with some of whose species it nearly agrees in corolla, but from all of which it differs in its glandular scariose calyx.

20. EREMOPHILA (*Sturtii*), pubescens, foliis angustè linearibus apiculo recurvo, corollis extus pubescentibus limbo intus barbato, staminibus inclusis.

LOC. "On the Darling; flowers purplish, sweet-scented." D. Sturt.

DESC. Frutex orgyalis (D. Sturt.). Calyx 5-partitus, æqualis; sepalis obovato-oblongis, basi angustioribus sed in unguem vix attenuatis, membranaceis, uninerviis, venosis. Corolla bilabiata, tubo amplo recto, labiis obtusis, extus pubescens, intus hinc (inferius) barbata. Labium superius tripartitum; lobo medio bifido (e duobus conflato); laciniis omnibus obtusis; inferius obcordatum bilobum lobis rotundatis, densius barbatum. Stamina quatuor didynama, omnino inclusa. Filamenta glabra. Antheræ reniformes, loculis apice confluentibus. Ovarium densè lanatum. Stylus glaber. Stigma indivisum, apice styli vix crassius.

Obs. Species proxima E. Mitchelli *Benth. in Mitch. Trop. Austr.* p. 31.

21. Stenochilus *longifolius*. Br. prodr. i. p. 517.
Stenochilus pubiflorus. *Benth. in Mitch. trop. Aust. p.* 273.
Stenochilus salicinus. *Benth. in Mitch. trop. Austr. p.* 251.

Loc. Nulla stationis indicatio.

22. Stenochilus *maculatus*, *Ker in Bot. Regist. tab.* 647. *Cunningh. MSS.* 1847.

β. Stenochilus curvipes. *Benth. in Mitch. trop. Austr. p.* 221.
Varietas S. maculati, sepalorum acumine paulo breviore.

Obs. M. Alphonse De Candolle, in Prodr. xi. p. 715. refers S. ochroleucus of Cunningh. MSS. 1817, as a variety to S. maculatus; it is however very distinct, having a short erect peduncule like that of S. glaber, to which it is much more nearly related, differing chiefly in its being slightly pubescent.

23. Grevillea (Eugrevillea) *Sturtii*, foliis indivisis (nonnullis rarò bifidis) augustè linearibus elongatis uninerviis: marginibus arctè revolutis, racemis oblongis cylindraceisve: rachi pedicellis perianthiisque inexpansis glutinoso-pubescentibus, ovario sessili, stylo glabro.

Loc. "On sand-hills in lat. 27° S." D. Sturt.

Desc. Arbor 15-pedalis (Sturt.) Rami teretes, pube arctè adpressa persistenti incani. Folia 6-10-pollices longa, vix tres lineas lata, subter pubescentia incana, super tandem glabrata. Thyrsus terminalis, 2-4 uncialis, rachi pedicellisque pube erecta nec appressa secretione glutinosa intermista. Flores aurantiaci.

Obs. In the collection presented to the British Museum by Sir Thomas Mitchell, of the plants of his last expedition, there is a very perfect specimen, in flower, of Grevillea Sturtii.

The following observations respecting the Grevilleæ of the same collection may not be without interest.

Grevillea Mitchellii, *Hooker, in Mitch. Trop. Austr. p.* 265, proves to be Gr. Chrysodendron, *prodr. fl. Nov. Holl. p.* 379, the specific name of which was not derived from the colour of the under surface of the leaves, which is, indeed, nearly white, but from the numerous orange-coloured racemes, rendering this tree conspicuous at a great distance.

Grevillea longistyla and G. juncea of the same narrative, both belong to that section of the genus which I have named Plagiopoda.

A single specimen, in most respects resembling Gr. longistyla, of which possibly it may be a variety, but which at least deserves notice, has all its leaves pinnatifid, instead of being undivided. It may be distinguished by the following character:—*Grevillea* (*Plagiopoda*) *neglecta*, foliis pinnatifidis subtus niveis; laciniis linearibus, stylis glabris.

A single specimen also exists of Grevillea (or Hakea) lorea, *prodr. flor. Nov. Holl. p.* 380, but without fructification.

24. Grevillea (Cycloptera ?) *lineata*, foliis indivisis lineari-ensiformibus enerviis subter striis decem paucioribus elevatis uniformibus interstitia bis-terve latitudine superantibus, cicatrice insertionis latiore quam longa utrinque obtusa, racemis terminalibus alternis, pistillis semuncia brevioribus stigmate conico.

Loc. "It takes the place of the gum-tree (Eucalyptus) in the creeks about lat. 29° 30′ S." D. Sturt.

Obs. It is difficult to distinguish this species, which, according to Captain Sturt, forms a tree about 20 feet in height, from Grevillea striata. I have endeavoured to do so in the above specific difference, contrasted with which the leaves of G. striata have always more than 10 striæ,

which are hardly twice the breadth of the pubescent interstices, and the cicatrices of whose leaves are longer than broad, and more or less acute, both above and below. This is a source of character which in the supplement to the Prodr. Floræ Novæ Hollandiæ, I have employed in a few cases both in Grevillea and Hakea, but which I believe to be important, as it not only expresses a difference of form, but also in general of vascular arrangement.

25. PTILOTUS (*latifolius*) capitulis globosis, bracteis propriis calycem superantibus, foliis ovatis petiolatis.

LOC. "In lat. 26° S."—D. Sturt.

DESC. Herba diffusa, ramosa, incana. Folia alterna, petiolata, latè ovata, integerrima. Capitula ramos terminantia, solitaria vel duo approximata. Bracteæ laterales scariosæ, sessiles, latè ovatæ, enerviæ. Perianthium; foliolis subæqualibus, lana implexa alba basi tectis, ante expansionem ungue nervoso tunc brevissimo, post anthesin laminam scariosam enervem fere æquante. Stamina 5 antherifera; filamenta basi in cyathulum edentulum connata. Antheræ biloculares, loculis utrinque distinctis medio solum conjunctis. Ovarium monospermum, glabrum. Stylus filiformis, glaber. Stigma capitatum, parvum. Utriculus evalvis, ruptilis.

OBS. I was at first inclined to consider this plant as a genus distinct from Ptilotus, more, however, from the remarkable difference in habit than from any important distinction in the flower, for its character would have chiefly consisted in the great size of its lateral bracheæ, and in the form of its antheræ.

In a small collection formed during the voyage of Captains Wickham and Stokes, there is a plant very nearly related to, and perhaps not specifically distinct from Ptilotus latifolius, but having narrower leaves. It was found on one of the islands of Dampier's Archipelago.

26. NEURACHNE (*paradoxa*) glaberrima, culmo dichotomo, foliis rameis abbreviatis, fasciculis paucifloris, glumis perianthiisque imberbibus valvula exteriore cujusve floris septemnervia.

LOC. Nulla indicatio loci v. stationis, in Herbario. D. Sturt.

DESC. Gramen junceum, facie potius Cyperaceæ cujusdam. Folia radicalia in specimine unico viso defuere; ramos subtendentia abbreviata, vagina aperta ipsum folium superante; floralia subspathiformia sed foliacea nec membranacea. Fasciculi pauciflori: spiculæ cum pedunculo brevissimo articulatæ et solubiles, et subtensæ bractea nervosa carinata ejusdem circiter longitudinis. Gluma bivalvis biflora, nervosa, acuta, mutica; valvulæ subæquales septemnerviæ; exterioris nervis tribus axin occupantibus sed distinctis reliquis per paria a marginibus et axilibus subæquidistantibus; interioris nervis æquidistantibus, externis margine approximatis. Perianthium inferius (exterius), bivalvis, neuter; valvula exterior septemnervis, exteriori glumæ similis textura forma et longitudine; valvula interior (superior) angustior pauloque brevior, dinervis, nervis alatis marginibus veris latis induplicatis. Perianthium superius hermaphroditum, paulo brevius, pergamineo-membranaceum, nervis dilutè viridibus; valvula exterior quinquenervis, acuta, concava; interior ejusdem fere longitudinis, dinervis. Stamina 3, filamentis linearibus. Ovarium oblongum, imberbe. Styli duo. Stigmata plumosa, pallida?

OBS. Neurachne paradoxa, founded on a single specimen, imperfect in its leaves and stem, but sufficiently complete in its parts of fructification, differs materially in habit from the original species, N. alopeuroides, as well as from N. Mitchelliana of Nees, while these two species differ widely from each other in several important points of structure.

In undertaking to give some account of the more remarkable plants of Captain Sturt's collection, it was my intention to have entered in some detail into the general character of the vegetation of the interior of Australia, south of the Tropic.

I am now obliged to relinquish my original intention, so far as relates to detail, but shall still offer a few general remarks on the subject.

These remarks will probably be better understood, if I refer, in the first place, to some observations published in 1814, in the Botanical Appendix to Captain Flinders's Voyage.

From the knowledge I then had of New Holland, or Australian vegetation, I stated that its chief peculiarities existed in the greatest degree in a parallel, included between 33° and 35° S. lat. which I therefore called the principal parallel, but that these peculiarities or characteristic tribes, were found chiefly at its western and eastern extremities, being remarkably diminished in that intermediate portion, included between 133° and 138°, E. long. These observations related entirely to the shores of Australia, its interior, being at that period altogether unknown; and the species of Australian plants, with which I was then acquainted, did not exceed 4200. Since that time great additions have been made to the number, chiefly by Mr. Allan Cunningham, in his various journeys from Port Jackson, and on the shores of the North and North-west coasts during the voyages of Captain King whom he accompanied; by Messrs. William Baxter, James Drummond, and M. Preiss, at the western extremity of the principal parallel, and by Mr. Ronald Gunn in Van Diemen's Land. It is probable that I may be considered as underrating these additions, when I venture to state them as only between two and three thousand; and that

the whole number of Australian plants at present known, does not exceed, but rather falls short of 7000 species.

These additions, whatever their amount may be, confirm my original statement respecting the distribution of the characteristic tribes of the New Holland Flora; some additional breadth might perhaps be given to the principal parallel, and the extent of the peculiar families may now be stated as much greater at or near its western, than at its eastern extremity.

With the vegetation of the extra-tropical interior of Australia, we are now in some degree acquainted, chiefly from the collections formed by the late Mr. Allan Cunningham, and Charles Fraser, in Oxley's two expeditions from Port Jackson into the western interior, in 1817 and 1818; from Captain Sturt's early expeditions, in which the rivers Darling, Murrumbidgee, and Murray, were discovered; from those of Sir Thomas Mitchell, who never failed to form extensive collections of plants of the regions he visited; and lastly, from Captain Sturt's present collection.

The whole number of plants collected in these various expeditions, may be estimated at about 700 or 750 species; and the general character of the vegetation, especially of the extensive sterile regions, very nearly resembles that of the heads of the two great inlets of the south coast, particularly that of Spencer's Gulf; the same or a still greater diminution of the characteristic tribes of the general Australian Flora being observable. Of these characteristic tribes, hardly any considerable proportion is found, except of Eucalyptus, and even that genus seems to be much reduced in the number of species; of the leafless Acaciæ, which appear to exist in nearly their usual proportion; and of Callitris and Casuarina. The extensive families of Epacrideæ, Stylideæ, Restiaceæ, and the tribe

of Decandrous Papilionaceæ, hardly exist, and the still more characteristic and extensive family of Proteaceæ is reduced to a few species of Grevillea, Hakea, and Persoonia.

Nor are there any extensive families peculiar to these regions; the only characteristic tribes being that small section of aphyllous, or nearly aphyllous Cassiæ, which I have particularly adverted to in my account of some of the species belonging to Captain Sturt's collection; and several genera of Myoporinæ, particularly Eremophila and Stenochilus. Both these tribes appear to be confined to the interior, or to the two great gulfs of the South coast, which may be termed the outlets or direct continuation of the southern interior; several of the species observed at the head of Spencer's Gulf, also existing in nearly the same meridian, several degrees to the northward. It is not a little remarkable that nearly the same general character of vegetation appears to exist in the sterile islands of Dampier's Archipelago, on the North-west coast, where even some of the species which probably exist through the whole of the southern interior are found; of these the most striking instances are, Clianthus Dampieri, and Jasminum lineare, and to establish this extensive range of these two species was my object in entering so minutely into their history in the preceding account.

A still greater reduction of the peculiarities of New Holland vegetation, takes place in the islands of the South coast.

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